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Banking Institutions and Natural Disasters Recovery, Resilience and Growth in the Face of Climate Change

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(Article begins on next page)

# Banking Institutions and Natural Disasters

Recovery, Resilience and Growth in the Face of Climate Change

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## Foreword

Humanity has tried to cope with the short and long-term economic consequences of natural disasters for centuries. However, the severity of these events is constantly increasing in magnitude, due to the alteration of the earth's climate and the environment. They pose a serious threat to the lives of millions of people especially in less developed countries. At the same time, the international community has acknowledged that weather hazards' impact and countries' resilience to them is affected by various socio-economic factors, such as the well-functioning of financial institutions, especially commercial banks.

In this book, we aim to look more closely at how natural disasters impact bank activity, and how banks can support economic recovery after a natural disaster. The importance of banks in this context is underscored by increasing regulatory attention on their role in fostering a sustainable future, but also on the risks that climate change poses to bank stability.

Banks will inevitably adapt their strategies to address concerns arising from climate change. In doing this, they must partner with international cooperation institutions, other financial intermediaries and local governments, so that the green transition ensures an inclusive growth for all, especially the most vulnerable parts of our societies.

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## Chapter 1 Overview

**Keywords:** natural disasters, climate change, physical risks

The natural environment is transforming; this alteration is influenced by how humans interact with nature, and how they are expected to transform their attitudes toward a changing natural environment. Weather-related catastrophes are becoming more prevalent, as the planet heats up. The intensity of some of them such as heat waves, tropical cyclones, and wildfires is amplifying considerably. A report by Barclays shows that the number of extreme weather events has augmented fivefold in the period 1970-2022, albeit diminishing slightly between the 2000s and the 2010s. Furthermore, extreme weather events have grown more intense and capricious with respect to timing and location, and their cost has soared almost eight times globally, inflation-adjusted, since the 1970s. This equates to cost per event soaring almost 77%, inflation-adjusted, over the past five decades.

Natural disasters have long-lasting socio-economic impacts on populations and countries that are impacted by them, especially in emerging economies. For instance, extreme temperature and humidity episodes, flooding and hurricanes, droughts and wildfires push populations to migrate, thereby destabilizing entire regions politically. These systemic social and economic changes might result in failed states and other breakdowns in countries in the most vulnerable areas. At the same time, companies may be exposed to drought, wildfire, floods, hurricanes, typhoons or tornado risks depending on their activities. Studies have demonstrated, for example, how food production is affected by drought risk in many parts of the world, and how food companies' financial performance is increasingly impacted by these episodes.

Extreme weather events can severely affect and quickly destabilize financial markets and institutions. The financial sector is exposed to physical risks<sup>1</sup> through several channels. First, they

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<sup>1</sup> Physical risks arise from climatic events, such as windstorms, floods or tornados. They can be both acute or chronic. Natural disasters are classified as acute physical risks. This study uses "acute physical risks" and "natural disasters" terms interchangeably.

affect the valuation of real estate assets, the main collateral of bank loans. Second, physical risks could hamper the borrowers' ability to pay off debt when they operate in sectors that could be particularly affected by disasters, such as agriculture or tourism<sup>2</sup>. Hence, the destruction and economic disruptions caused by hurricanes, wildfires, and other natural disasters may spill over to banks, particularly small, local institutions squared in the "eye" of the storm. If loan losses spike or customers move away over the longer run, bank solvency could be threatened. Indeed, the banking panic of 1907 was triggered by the earthquake and fire that ravaged San Francisco in 1906 (Odell and Weidenmier, 2005)<sup>3</sup>.

The financial sector plays an essential role in the post-disaster economic recovery. Banks provide emergency loans to businesses and households to restore their damaged properties. They also channel government subsidies or disaster loans to the population. Therefore, banks' profitability could benefit from increased lending in the aftermath of a disaster. However, when banks suffer physical or capital damage due to catastrophic natural events, they may not be able to provide sufficient funds at the same interest rates as before. Borrowers' financial constraints could exacerbate when they need to invest for reconstruction (Hosono et al., 2016).

The link between natural disasters and bank activity is therefore complex. Our knowledge of how the banking sector is affected by extreme weather hazards and whether and how they contribute to the economic recovery after the disaster still needs to improve. Therefore, this book aims to shed light on the importance of the financial institutions in promoting growth after extreme weather events. Financial institutions are uniquely positioned to have a broad and sizeable impact on the challenges that natural disasters pose to humanity owing to their critical role in society. They serve as fiduciary stewards, allocators, and distributors of capital across the global economy and directly impact the ability of people to manage their money and build wealth.

At the same time, regulators and policymakers strongly emphasize and enforce the measurement and compliance of banks with risks related to climate change. Banks will be required to assess their exposure to climate risks correctly and contribute to channeling private investment towards

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<sup>2</sup> Bolton et al., 2021.

<sup>3</sup> Blickle et al., 2022.

climate-neutral and climate-resilient investment opportunities. In this context, banks could modify their strategies towards lending to disaster-prone areas, which could have serious consequences for the economic activity in entire world regions. Therefore, a careful understanding of bank behavior in the face of these risks and regulatory pressure is fundamental for evaluating post-disaster recovery, especially of less developed countries.

Banks are not the only relevant actor in restoring economic activities after natural disasters strikes. The insurance industry plays a vital role in dealing with the rising threat of extreme weather, appropriately pricing risks and losses from extreme weather events, and protecting against them. Evidence shows that insurance earnings are directly affected by extreme weather. While nominal catastrophe pricing has improved since 2017, risk-adjusted prices have little changed – indicating that insurers are not being paid for taking on the additional risk.

State intervention and the role of international development agencies is also crucial, especially for emerging countries. While the insurance industry has shouldered losses amounting to USD \$1.35 trillion since 1980, that is only one-third of global extreme weather losses – the remainder of which is subsidized by governments or international donors. Governments play a crucial role in improving disaster preparedness at the same time as enabling better disaster prevention and climate adaptation. International organizations such as the World Bank provide assistance and disaster finance for reconstruction and improving the resilience of less developed economies. The financial sector strongly cooperates with these organizations in arranging innovative credit and insurance products, that can help communities and countries recover from extreme natural events, and improve their resilience in the face of climate change.

This book is structured as follows. Chapter 2 provides a description of the short- and long-term economic consequences of natural disasters. The focus will be on the main theoretical approaches that adopted to measure how external shocks like natural disasters impact accumulation of physical and intangible capital, productivity and growth. The empirical evidence on the effects of natural disasters on the economy is abundant and emphasizes the importance of various factors in significantly moderating this relationship. Moreover, the findings are not uniform

across different geographic regions and countries with different levels of pre-disaster economic development.

Chapter 3 looks at how banks are affected by natural disasters in terms of risk, profitability, and the evolving regulatory framework related to climate risks for banks. The channels through which banks are affected by disasters will be highlighted, and a detailed view of the current empirical literature will be provided. Its findings suggest that many external and internal factors to these institutions influence the link between weather hazards and bank activity. A strong emphasis will be dedicated to the regulatory framework shaping bank activity in the face of the climate transition context in different countries.

In Chapter 4, the role of banks in promoting growth through the lending channel from a theoretical and empirical perspective is outlined. Numerous economic theories have attempted to explain the bank lending channel and banks' impact on the real economy. What is different now is that banks' response to natural disasters has a tangible impact on the recovery of the regions where they operate, conditional on other factors, which could be bank, or country specific. Finally, a possible interpretation of how bank strategies and lending could be shaped in the following years by these rules will be provided, conditional on the different climate environment where they will operate and on the regulatory framework they must comply with.

Last, in Chapter 5 the role of other institutions in increasing resilience from natural disasters is described. These could be multilateral development institutions such as the World Bank, the International Monetary Fund, or insurance companies that play a key role in absorbing losses deriving from weather hazards. The role of these organizations in assisting less developed countries in their adaptation efforts to climate change cannot be understated. At the same time, the role of the government is fundamental for building resilience to natural disasters and promoting a culture of risk management in our societies.

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