

Climate change risk – Financial Stability Relevance

Climate change refers to long-term alterations in temperatures and weather patterns. One of the main contributors to climate change is the release of greenhouse gases in the atmosphere, with carbon dioxide (CO₂) emissions playing a significant role. Major aspects of climate change include global warming, the heightened risk of unprecedented extreme weather events and changes in sea levels, all of which can have profound social and economic consequences.

Climate change poses significant threats to the financial system along two main dimensions: (i) 'physical risk' - the direct impacts and threats caused by the physical impacts of climate-related events and phenomena, and (ii) 'transition risk' - the financial, operational and strategic challenges that financial markets encounter during the shift towards a lower carbon footprint, including changes in policies and technologies that may affect asset prices in carbon-intensive sectors.

The escalation in both the intensity and frequency of both chronic (e.g. sea levels rise, temperature fluctuations, shifts in rainfall and droughts patterns) and acute phenomena (e.g. heatwaves, hurricanes, wildfires), may significantly affect the operations and profitability of businesses. This impact may result in asset and collateral value losses for financial entities, accompanied by surges in the number and value of insurance claims. With the progression of climate change, the risk of sudden losses in climate-sensitive geographical areas increases. Simultaneously, the implementation of climate change regulatory policies, such as the introduction of a carbon pricing mechanism aimed at reducing carbon emissions, could amplify losses in the financial sector, particular for entities with significant exposure to carbon-intensive sectors.

As the repercussions of climate change extend and escalate, climate-related risks have the potential to emerge as a substantial source of systemic risk within the financial system. In addition, interconnectedness and spillover effects within the financial system, may further amplify the economic and financial consequences. As a result, climate change related disruptions are expected to impact a significant portion of financial entities globally, extending through global production value chains, and micro- and macroeconomic risk channels.

Assessing climate change risks from a financial stability perspective presents several challenges. Firstly, the complex and uncertain nature of climate variations makes it challenging to accurately quantify and model risks arising from dynamic and interconnected phenomena with long-term effects. Additionally, the dearth of data, both current and historical, hampers the risk assessment capabilities of both financial entities and regulators. Collectively, these factors heighten the risk of underestimating climate-related risks, potentially leading to unanticipated and significant economic losses which could undermine the resilience of the financial sector.

Against this backdrop, central banks and financial supervisors worldwide have, in recent years, taken steps to incorporate climate-related financial risks into their risk assessments

and prudential frameworks. Through such initiatives, regulators aim to ensure that financial entities are better equipped to withstand climate-related shocks. From a financial stability perspective, a notable example of this involvement relates to a study conducted by the MFSA's Financial Stability Function on climate transition risk. This research focussed on assessing the potential impact of the introduction of a carbon tax on the investment portfolios held by financial entities within the Maltese financial system.

Acknowledging the potential risks created by climate change, central banks and supervisors worldwide, established the Network for Greening the Financial System (NGFS) in 2017. This global group, which includes the MFSA among its 129 members, facilitates the sharing of best practices and contributes to the development of climate-related risk management. Simultaneously, the NGFS encourages financial entities to actively support the transition to a sustainable economy. Collaborating with climate scientists and economists, the NGFS has developed a set of hypothetical scenarios to assist central banks and supervisors in exploring potential impacts on the economy and the financial system under different assumptions about the physical and transition risks associated with climate change.

For further information:

- [Conte G., Meglioli F., Climate Transition Risk: Quantifying the Impact of Carbon Taxation on the Investment Portfolio of Financial Institutions](#), November 2021
- [Network for Greening the Financial System \(NGFS\) Climate Scenarios](#)
- [ECB Financial Stability Review](#), special feature, May 2022
- [ECB Financial Stability Review](#), special feature, May 2019