

Climate Scenario Analysis

WHAT IS SCENARIO ANALYSIS?

Scenario analysis involves assessing potential future events or situations and predicting their possible outcomes. In finance, it is used to gauge how different favorable and unfavorable events might affect the value or financial performance of a business. Businesses often employ scenario analysis to anticipate profits or possible losses in various situations, like the best-case or worst-case scenarios.

During scenario building, managers define various future states about the business (like revenue growth, product price, operating costs), industry dynamics (such as new competitors or regulations), and economic conditions (like inflation and interest rates). Using these assumptions, projections are made for different scenarios to determine outcomes such as profits, losses, or cash flows, aiding decision-making processes.

CLIMATE SCENARIO ANALYSIS

The distinct and complex nature of climate risk – its global scope, long-term time horizons, considerable uncertainty in terms of policy and socio-economic factors, and variation across regions and sectors – poses challenges in employing conventional risk assessment methods.

Scenario analysis, which explores various future states based on uncertainty or risk, is a robust tool for understanding and managing climate change risks. Climate-related risk drivers, including physical risks like extreme weather events, sea-level rise, hurricanes, and wildfires as well as transition risks arising from uncertainty surrounding the path to net-zero emissions, prompt businesses and institutions to use climate scenario analysis to evaluate their vulnerability to these uncertain and unpredictable risks.

It enables stakeholders, including central banks, supervisors, financial institutions, businesses, and policymakers to better understand how climate-related risk factors will drive shifts in the economic and the financial landscape. It helps in assessing the resilience of an entity's business models and strategies against potential climate pathways. For example, central banks may conduct assessments to understand the potential impact of a 2°C warming scenario on the financial system. Leveraging scenario analysis, central banks may evaluate the magnitude of these risks and determine necessary regulatory adjustments to safeguard financial stability.



CLIMATE SCENARIO ANALYSIS - A FOUR-STEP PROCESS

As stated by Network for Greening the Financial System (NGFS), scenario analysis entails a four-step process:

The First Step

The first step involves defining the objective and scope of the scenario analysis, for example, assessing macroeconomic impacts, systemwide risks or financial firm risks. It also includes identifying the most significant risk factors, establishing an appropriate time horizon and mapping key stakeholders or the target audience.

The Second Step

In the second step, an appropriate number of scenarios are selected considering objectives and resource constraints. It also includes defining the level of granularity of the assessment, time intervals and level of severity.

The Third Step

The third step entails selecting the methods and tools required for assessing the potential macroeconomic impacts on key variables such as GDP, unemployment, inflation rate as well as financial impacts like income and asset value losses.

The Final Step

The final step involves implementing the outcomes and communicating them to the target audience. The results should be used to enhance awareness of risks and improve risk management practices within the relevant stakeholders.

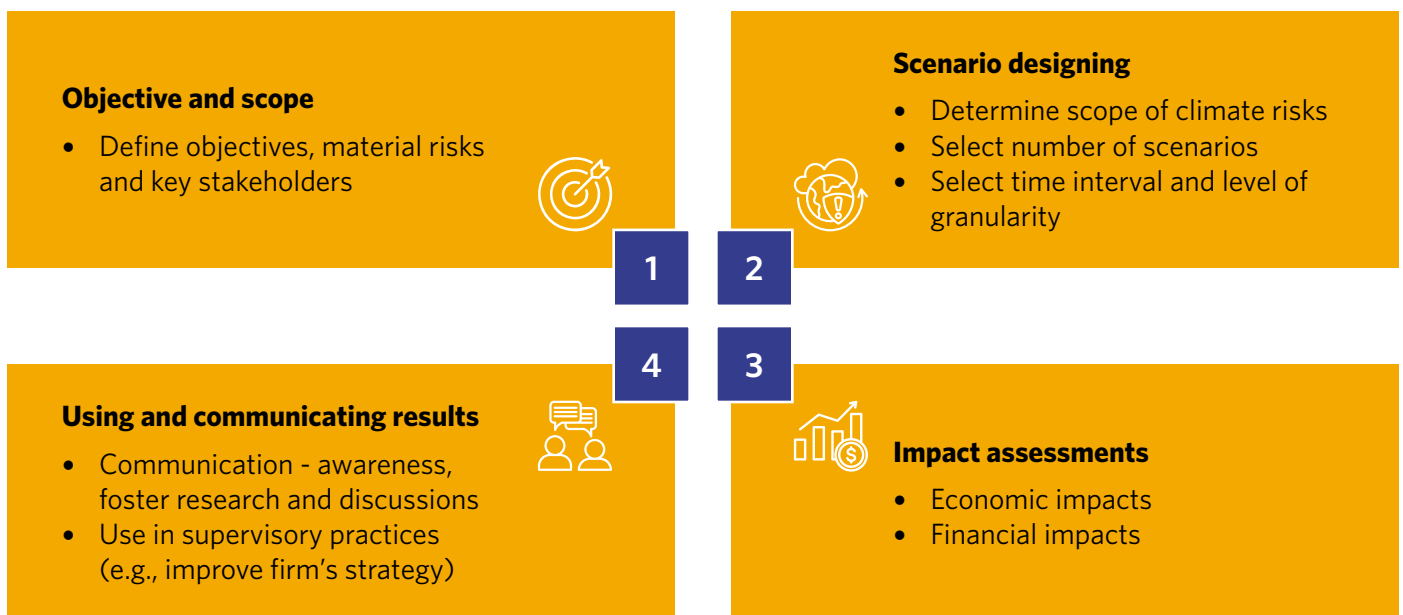


Figure: Climate Scenario Analysis process

Figure adapted from NGFS's Guide to Climate Scenario Analysis for central banks and supervisors.

CHALLENGES

Scenario analysis finds its extensive application within the financial sector, however, its adaptation to climate change presents challenges due to its nascent and evolving methodology. The major issue lies in the limited availability of data and research necessary for calibrating scenarios and assessing their impact adequately. Moreover, the integration of financial risks, physical risks, and macroeconomic transmission channels is complicated. Furthermore, the financial sector lacks the technical expertise concerning climate science and environmental economics essential for conducting climate scenario analysis. While international organizations, like the Intergovernmental Panel on Climate Change (IPCC) and the Network for Greening the Financial System (NGFS) have attempted to issue guidelines for various climate warming scenarios, their usefulness is limited due to conceptual complexities. These include rigid assumptions about macro-financial variables and the absence of probability assignment to various scenarios, which restrict their practicality.

CONCLUSION

Climate scenario analysis, a strategic planning tool, is gaining traction for its utility in examining potential future scenarios and assessing the resilience of an organization's business strategies against various climate-related risks. Businesses, financial institutions, and regulators need to adopt a progressive approach to integrate scenario analysis into strategic planning practices. The adoption of climate scenario analysis is still in its infancy, with financial regulators in the US, Australia, Europe, and other regions conducting pilot programs. By gaining a better understanding of the likelihood of various outcomes and leveraging available information, entities can assess the ultimate question of "what climate change may mean" for them.

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READING LIST

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