



# **Financial Risk Management View of Disaster Risks**

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## Disclaimer

The views expressed in this presentation are those of the presenter and do not necessarily represent the views of the IMF, its Executive Board, or IMF Management

# Financial Risk Management Approach: Catastrophe (CAT) Risk Models

Probability distribution of possible losses and risk tolerance determines insurance premium and buffers

## Riverine Flooding



Source: CoreLogic

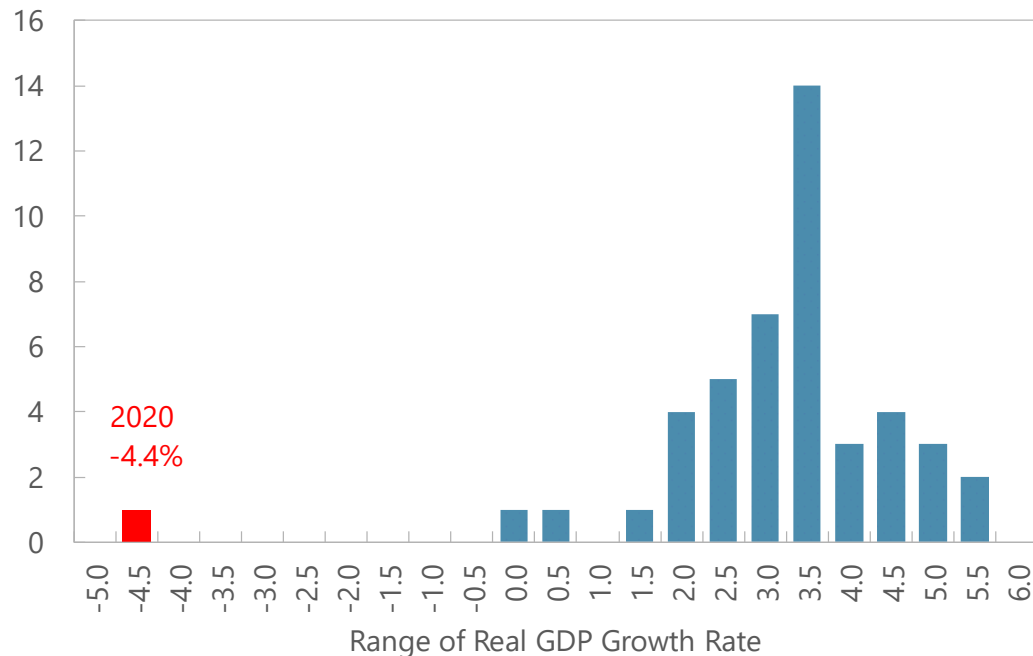
# Challenge: Loss Distribution

## How much could we lose once in 10, 20, 50, 100, 250, 500 years?

COVID-19 Shock—“never happened before” within the WEO data span

### Distribution of Annual Global Growth: 1980-2020

(Number of observations for a given range of growth rate)



IMF: World Economic Outlook

**“Tail” disaster risk (extreme weather events)—hard to gauge**

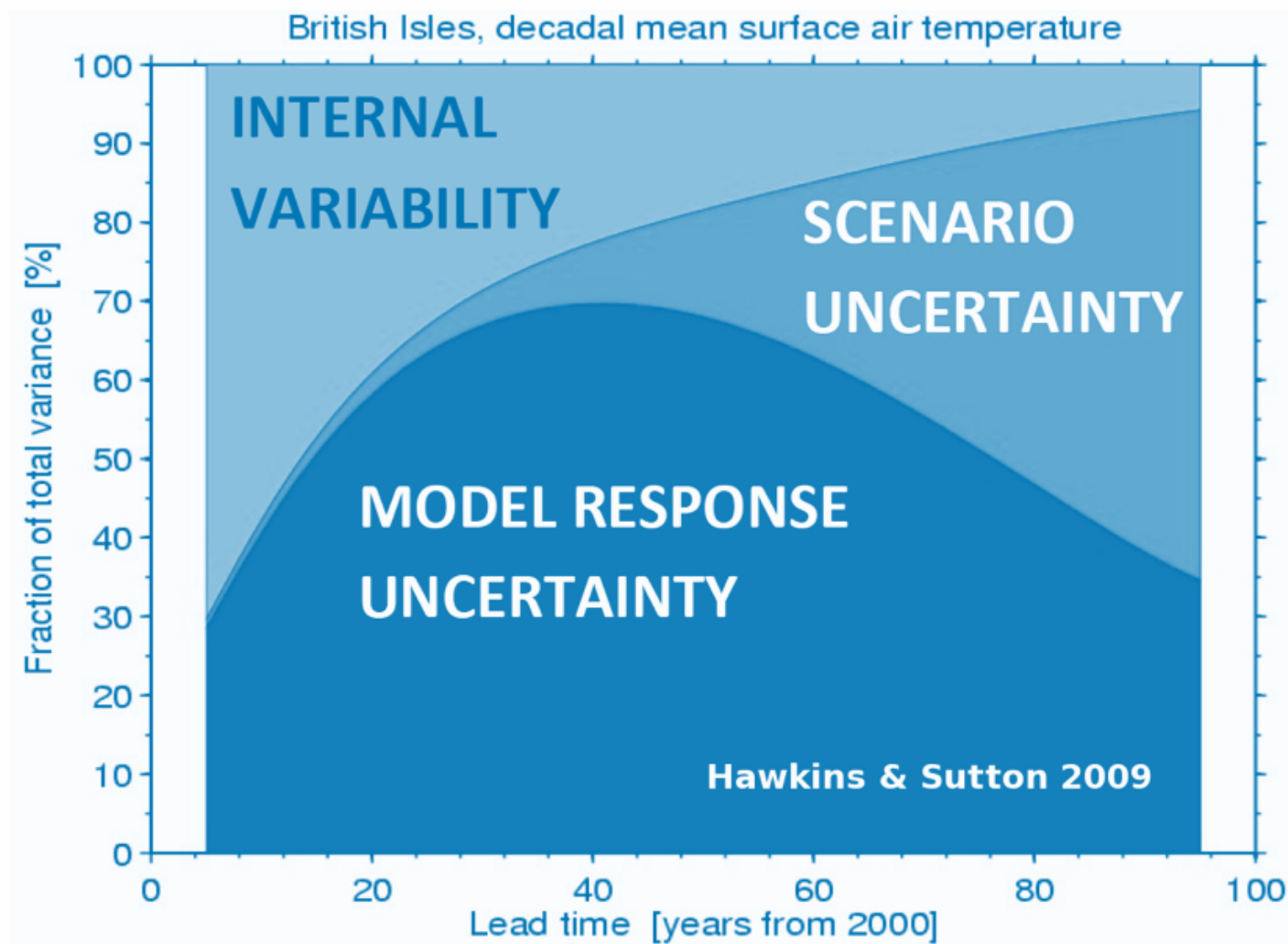
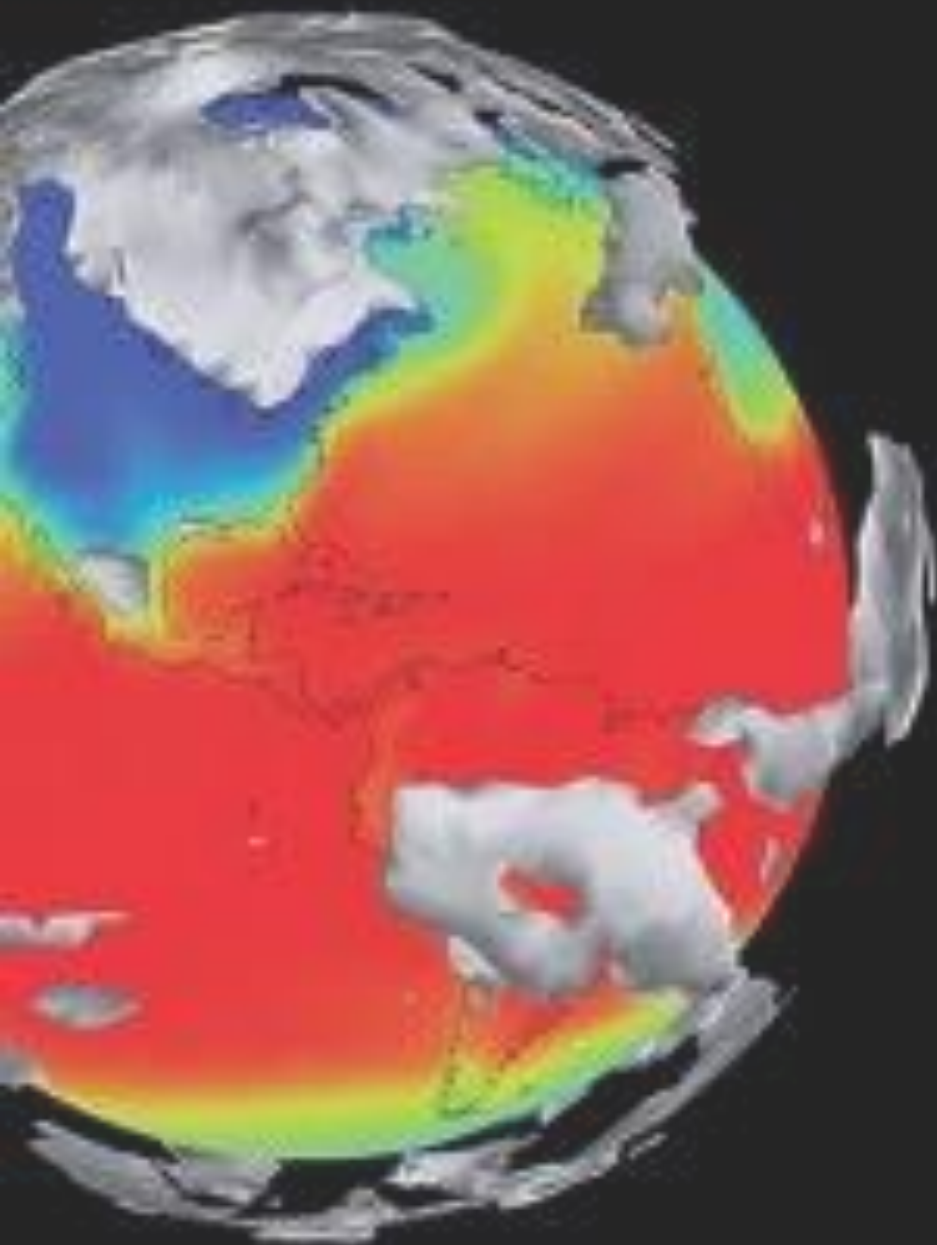
- (Recorded) historical data may not be enough (e.g., COVID)
- Cat risk models—use simulations to consider “never happened before” events
- Climate change—shifts the distribution, depending on global temperature scenarios
- “Compound risk” –multiple disasters

**Higher frequency events also important**

- Increase long-term economic volatility
- Reduce long-term productivity in certain sectors



# Uncertainty in Climate Projections



Uncertainty increases over time, but the main drivers of uncertainty change over time. Not that uncertainties related to how the economy responds are in addition

# How to manage the risks?

## Insurance

Disaster insurance  
(private, public)

Global re-insurance

Post-disaster financing  
from IFIs

## Mitigation

Strengthen  
infrastructures / health  
care systems

Sector-specific  
measures (e.g., better  
irrigation)

## Adaptation

Long-term economic  
growth plan to increase  
resilience

Relocation of economic  
activities

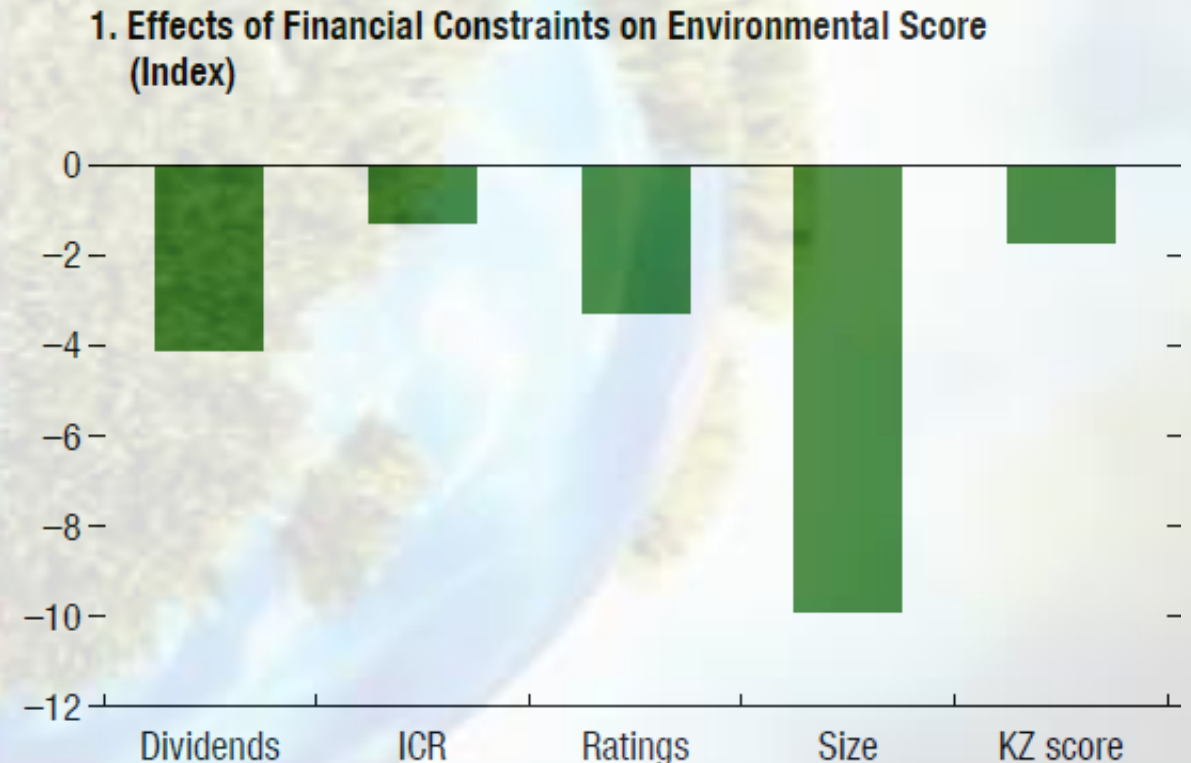
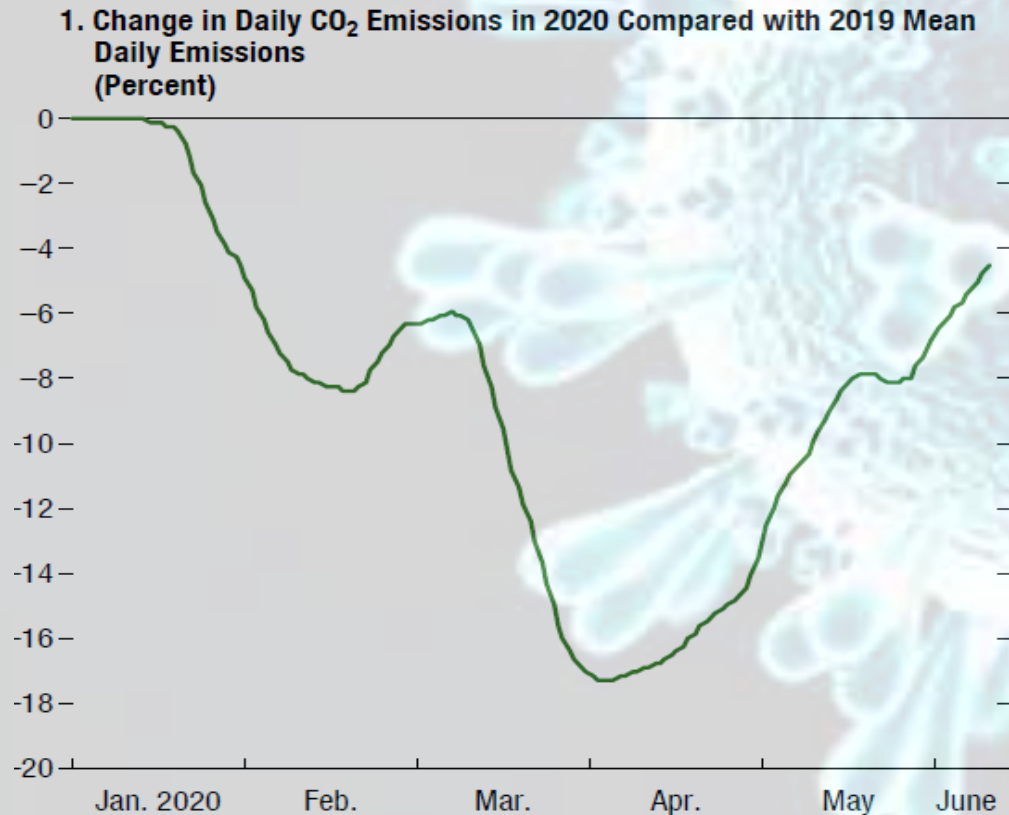
Green investment,  
opportunities, and  
recovery (from COVID)

# COVID-19, Green Investment, and Public Support

## (Global Financial Stability Report, October 2020)

Carbon emissions declined as COVID-19 became a global pandemic, but it was short-lived.

Financially constrained firms have weaker environmental performance—COVID could be detrimental to environmental investments—public support?





**Thank you!**

