Institute
and Faculty
of Actuaries

Climate Change – Implications for Insurers

James Orr

19 June 2019

Institute
and Faculty
of Actuaries

PRA supervisory statement and the physical climate change risk framework

James Orr
Head of Department
General Insurance Risk Specialists
Prudential Regulation Authority

19 June 2019

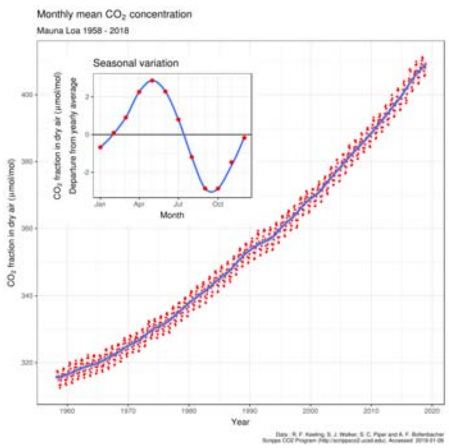
Overview

- Background
- Supervisory Statement
- Physical Climate Change Risk Framework
- Concluding remarks
- Q&A

Institute and Faculty of Actuaries

19 June 2019 3

Background – "*The Keeling Curve*"



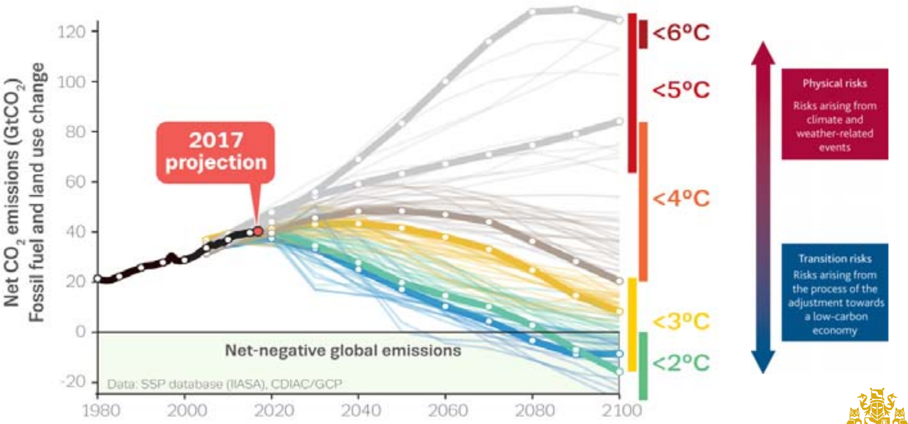
https://en.wikipedia.org/wiki/Keeling_Curve

- Continuous measurement of the accumulation of CO2 in the Earth's atmosphere since 1958
- Taken at the Mauna Loa Observatory, on the island of Hawaii by Charles David Keeling
- Year-to-year increase in CO2 roughly matched the amount of fossil fuels burned per year
- Comparative datasets of atmospheric CO2
  - Kew 1898-1901 averaged 274 ppmv
  - Eastern US 1936-1938 averaged 310 ppmv
- By 1976, it was well established that the rising carbon dioxide in the curve was due to anthropogenic emissions

Institute and Faculty of Actuaries

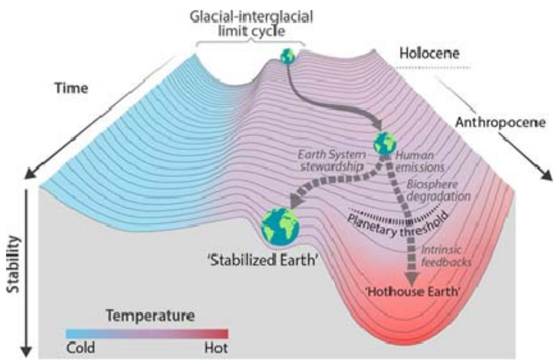
19 June 2019 4

Possible future emission pathways



Institute and Faculty of Actuaries

Avoiding a "*Hothouse Earth*"



"Precisely where a potential planetary threshold might be is uncertain. We suggest 2°C because of the risk that a 2°C warming could activate important tipping elements, raising the temperature further to activate other tipping elements in a domino-like cascade that could take the Earth System to even higher temperatures (Tipping Cascades). Such cascades comprise, in essence, the dynamical process that leads to thresholds in complex systems." (Steffen, et al., 2018)

Institute and Faculty of Actuaries

Supervisory Statement SS3/19

- "*Enhancing banks' and insurers' approaches to managing the financial risks from climate change*"
  - Published in April 2019 within Policy Statement PS11/19
- Governance
  - Board to understand financial risks from climate change
  - Board and management to identify Senior Manager with responsibility for managing financial risks from climate change, to be named by 15th October 2019
- Risk management
  - firms to address the financial risks from climate change through their existing risk management frameworks
  - insurers (under Solvency II) to consider possible accumulation of risk in the investment portfolio (particularly via transition risk)

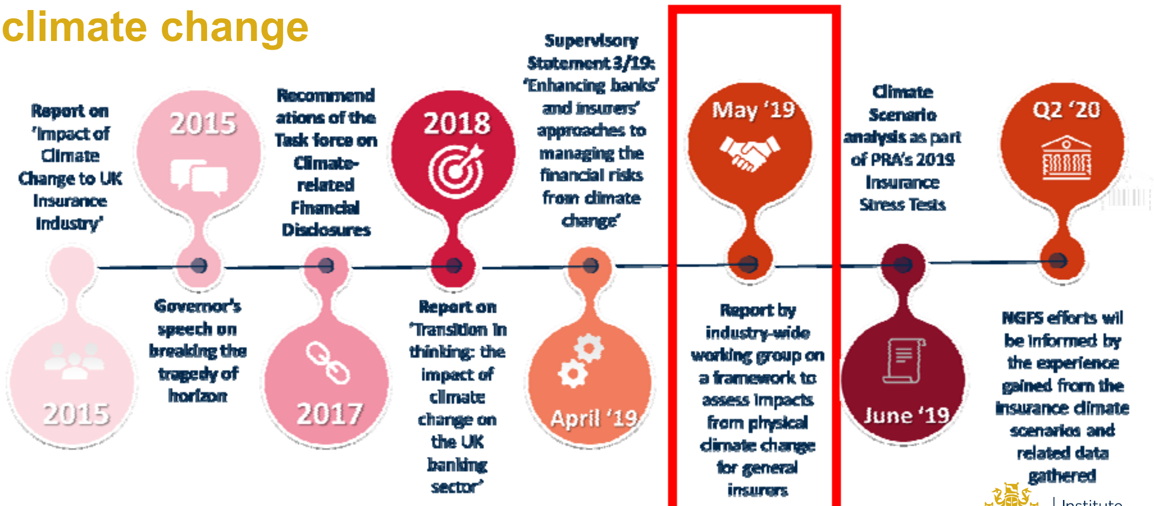
Institute and Faculty of Actuaries

Supervisory Statement SS3/19

- Scenario analysis and stress testing
  - firms (where proportionate) to do scenario analysis to examine the impact of financial risks from climate change on business strategy
  - firms to consider scenarios over both short term (e.g. life of business plan) and long term (e.g. consistent with a global temperature rise of 2 degrees C)
- Disclosure
  - firms will make disclosures about their financial risks from climate change
  - firms to consider if they would benefit from TCFD proposals
    - TCFD = taskforce on climate-related financial disclosure
  - firms could encourage greater climate-related disclosure in the economy through their ownership of financial assets

Institute and Faculty of Actuaries

Background: PRA leading on financial impacts from climate change



Institute and Faculty of Actuaries

Background: The stick, the whip and the road

The stick: Supervisory Statement 3/19

Sets the regulatory expectations and requires financial services firms to assess impacts from climate change, making a Senior Manager (SMF) accountable

The whip: IST2019: Climate Scenario

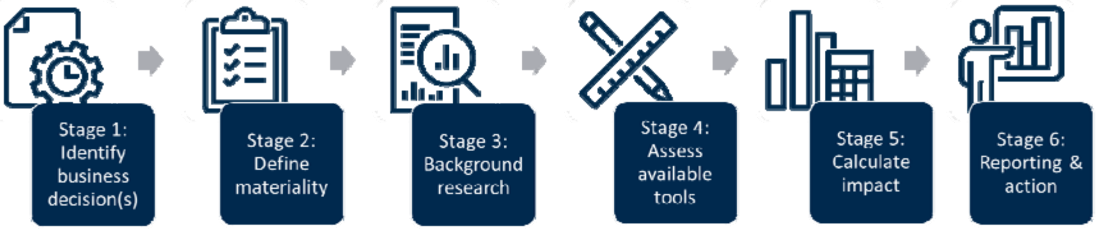
The first time a regulator issues a climate scenario to assess impacts from climate change across the different insurance firm activities

The road: A supporting Framework

A report that puts forward a framework to support firms in assessing physical climate change risk and provides example case studies developed by specialist across the market

Institute and Faculty of Actuaries

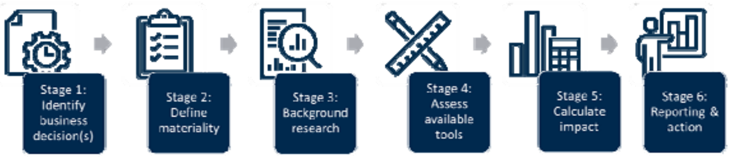
A framework for assessing impacts from physical climate change



- **Overview:**
  - The framework is an output of a joint effort by a PRA-led cross-industry working group
  - The framework is not prescriptive in nature but is intended to be an aid to practitioners
  - The purpose is to help (re)insurers commence analysis of financial impacts from climate change
  - We hope that once firms use it, they can propose improvements and evolve it further
  - It can support firms needing to undertake the IST 2019 Climate Scenario Analysis

Institute and Faculty of Actuaries

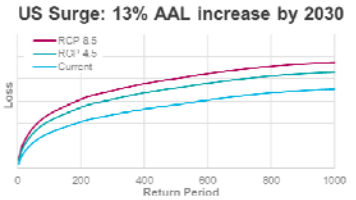
How the framework works: an overview



- **Stage 1:** Start with the end in mind by first articulating the purpose of the analysis. This in turn will permit the time horizon to be decided as it is driven by the business decision that needs to be informed.
- **Stage 2:** Define which perils/geographies are material for the assessment considering (i) firm exposure/portfolio and (ii) peril current *and* future risk profile.
- **Stage 3:** undertake background study to identify readily-available research that will shed light on how the identified material perils' risk profile will change over time for the material geographies
- **Stage 4:** Decide on suitability of risk analysis tools considering (i) available resources and (ii) background research outputs
- **Stage 5:** Calculate the financial impact on metrics that will help decision makers inform their thinking
- **Stage 6:** The outputs of the calculation should drive action

Institute and Faculty of Actuaries

The framework report provides real life examples



Risk appetite setting

TCFD/public disclosure

M&A

Product design

Public policy advocacy

Challenge #1: It doesn't move the dial

In the case study published in the Framework report, model providers and firms quantified for a US portfolio the impact of climate change for Flood, Surge and Wind.

Challenge #2: Insurers care for 1yr horizon

Many insurance activities require to consider beyond the 1yr horizon and catastrophe risk specialists can help in assessing climate risk

Challenge #3: We don't have the tools

Whilst there is much room for improvement, cat analytics tools can provide with useful information. The case studies in the Framework report provide with examples

Institute and Faculty of Actuaries

Concluding remarks

- We are in the "*Anthropocene*"
- Climate Change is expected to drive both Physical and Transition Risks
- These risks will impact insurers, leading to financial risks
- Regulators, including the PRA, will be challenging firms to assess and manage these risks
- New tools are needed to help with this, and some are already emerging

Institute and Faculty of Actuaries

Questions

Comments

The views expressed in this [publication/presentation] are those of invited contributors and not necessarily those of the IFoA. The IFoA do not endorse any of the views stated, nor any claims or representations made in this [publication/presentation] and accept no responsibility or liability to any person for loss or damage suffered as a consequence of their placing reliance upon any view, claim or representation made in this [publication/presentation].

The information and expressions of opinion contained in this publication are not intended to be a comprehensive study, nor to provide actuarial advice or advice of any nature and should not be treated as a substitute for specific advice concerning individual situations. On no account may any part of this [publication/presentation] be reproduced without the written permission of the IFoA [*or authors, in the case of non-IFoA research*].

Institute and Faculty of Actuaries