Climate Change – A Guide for Life Insurance Actuaries

David Ford, Zurich Insurance
Kyle Audley, Milliman

20 November 2018

Agenda

- Background: Why? What? Who?
- Regulatory development and disclosure
- Climate change and risk management
- Opportunities and Next steps
- Further reading

Institute and Faculty of Actuaries

Background

20 November 2018

Climate Change and Life Actuaries: Why?

Because you should do?

- Is climate change happening or likely to happen?
- Does it lead to financial uncertainty and risk?
- Could this be material over the short, medium or long term?

Because you must do?

- As an actuary: Institute and Faculty of Actuaries (IFOA) Risk Alert on Climate-Related Risks (IFOA, 2017). *"Actuaries should ensure they understand, and are clear in communicating, the extent to which they have taken account of climate-related risks in any relevant decisions, calculations or advice."*
- On behalf of an Insurer? What are the regulations that are or could impact them?

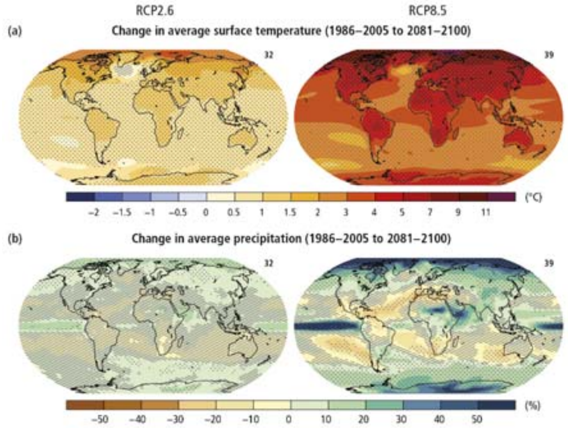
Because you can?

- What is possible in day to day actuarial work?
- What more can we do to progress knowledge and capability?

Institute and Faculty of Actuaries

Climate Change and Life Actuaries: What?

So What Could Climate Change Do?



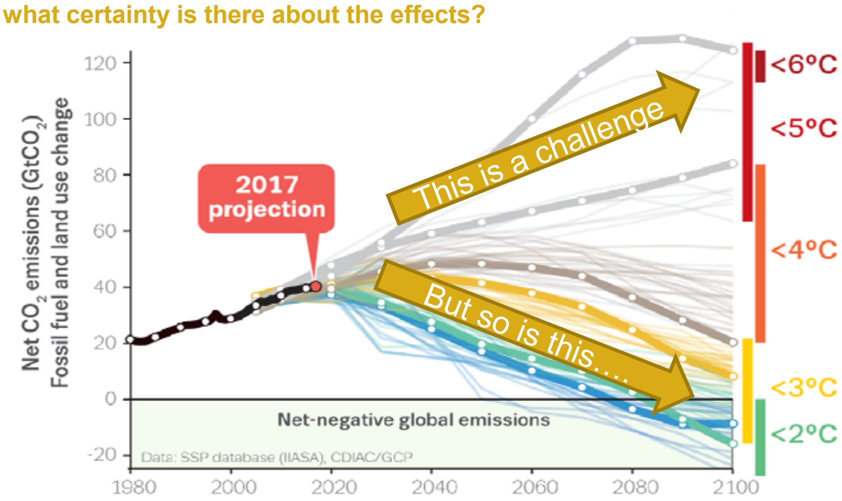
- Impacts of Climate Change potentially very material
- Some economic impact scenarios may be underestimating the compounding impact of physical effects
- Eg studies on 4 degrees warmer have shown
  - Large uninhabitable areas of world
  - 40m+ rises in sea level
  - Loss biodiversity eg 85%+ Amazon

1. Source: IPCC Fifth Assessment Report

Institute and Faculty of Actuaries

Climate Change and Life Actuaries: What?

And what certainty is there about the effects?



Institute and Faculty of Actuaries

Climate Change and Life Actuaries: What?

So what does the tell us about climate change? And how could it impact? The 2015 Bank of England report / Governors speech gives the following commonly accepted classification of the impacts of risk from climate change:

Risk type	Description
Physical	First-order risks arising from weather-related events, such as floods and storms
Transition	Financial risks arising from the movement to a lower carbon producing economy, this would include the re-pricing of carbon-intensive assets.
Liability	Risks that could arise for insurance firms from parties who have suffered loss and damage from climate change, and seek to recover such losses from others

Institute and Faculty of Actuaries

Climate Change and Life Actuaries: Who?

So is it relevant to your role?

Impact Area	Actuarial Impacts / Areas of Work
Changes to **investment performance** from • **direct climate impacts** on specific assets, • **regulation or restrictions** leading to 'stranded assets', • **investment opportunities** in capital intensive climate change mitigation or transitions	Investment advice Asset liability matching Product design eg investment fund choices and disclosure
Changes and uncertainty around **mortality and morbidity**	Product design Product pricing Reserving Capital Management
Changes to **regulation**	Risk governance Risk reporting Corporate level disclosures Customer / distributor disclosures
Overall **uncertainty around timing, magnitude and response** to climate change	Risk governance Strategic planning

Institute and Faculty of Actuaries

Institute and Faculty of Actuaries

Regulatory development and disclosure

20 November 2018

Regulatory development and disclosure: where are we today?

Even though the level of regulation explicitly and specifically related to climate change for life insurance actuaries and companies may be limited this is developing. In terms of the current status we can consider:

- **Explicit, Current Requirements**: for actuaries - IFOA Risk Alert. For firms - increasing explicit references to climate change in pensions law and regulation may have an impact for some product lines
- **Implicit, Current Requirements:** since actuaries and firms have explicit obligations to assess financial and strategic risks as a whole, are they adequately including consideration of climate change risk? What are their implied obligations to disclose climate change related risk / approach as part of wider shareholder reporting or to customers?
- **Current recommended / best practice:** eg TCFD disclosures, wider best practice around (non) investment in coal related industries. Firms' practice and disclosure here may be impacted by external lobbying

…and regulators are engaged and focussed on climate change risk

Institute and Faculty of Actuaries

20 November 2018 10

Evolving thinking is reflected in the latest PRA consultation

CP23/18 seeks views on a draft supervisory statement on banks and insurers' approaches to managing the financial risks from climate change. There are four key areas of recommendation being consulted on:

- **Governance:** climate change should be part of governance including board level and with senior manager function (SMF) individual responsibilities
- **Risk Management:** firms should address the financial risks from climate change through their existing risk management framework
- **Scenario Analysis:** where proportionate firms should use scenario analysis to assess the impact of financial risks from climate change on their current business strategy
- **Disclosure:** The PRA expects that firms will develop and maintain an appropriate approach to disclosure of climate-related financial risks

Responses by 15th January 2019!

Institute and Faculty of Actuaries

The latest FCA consultation is also of relevance to life insurers

DP18/8 seeks views on a draft supervisory statement on banks and insurers approaches to managing the financial risks from climate change. There are four key areas where the FCA raises questions and is seeking views:

- **Pensions:** proposing a single package of consultation for pensions in 2019 including climate change aspects
- **Innovation:** Enabling competition and market growth for green finance
- **Disclosures in Capital Markets:** consulting on the requirements for issuers of securities in regulated markets to make disclosures about climate change risk
- **Disclosure for financial services firms:** consulting on whether disclosure should be come a requirement, what should be included and for which firms

Responses by 31st January 2019!

Institute and Faculty of Actuaries

How Else Might Insurance Regulators Develop Their Requirements?

- The International Association of Insurance Supervisors (IAIS) draft paper of March 2018 offers insight on potential supervisory approaches to climate-related risks. It covers both strategies insurers could use to be resilient to climate risks, and issues relevant to regulators interacting with firms on climate change
- A survey across the regulatory bodies of the G20 highlights that many countries have developed policy and regulatory approaches towards climate change risks and, although these approaches vary between regulators, the underlying objectives are largely similar
- The core objectives fundamental to regulators and the potential responses are summarised in the table below

Core Objective	Implications of Climate Change	Potential Responses
Solvency and stability of insurance firms	Potential for physical and transition risks to pose risks for solvency of individual firms, stemming from underwriting and investment activities	• Supervisory engagement to quantify potential financial risks associated with physical climate damages (i.e. underwriting liabilities) • Surveys and Disclosure requirements
Market conduct, consumer protection, access and affordability, conduct and compliance	Potential for climate change render assets uninsurable (redlining); transparency for consumers on climate change practices and strategies; delivering enabling conditions for insurance product development	• Assessment of firm conduct on climate change issues • Supporting consumer awareness and literacy • Engagement with other policymaking bodies
Macroprudential stability	Potential for transition risks issues to pose systemic risks to the financial system and macro-economy	• Assessments of exposure to high carbon assets risk • Alignment of investments with climate goals

Institute and Faculty of Actuaries

How is Practice Evolving on Disclosure?

- At an international level, the Financial Stability Board (FSB) has created the Task Force on Climate -related Financial Disclosures (TCFD)
- The TCFD's goal is to promote voluntary, consistent, comparable, reliable and clear disclosures around climate-related financial risk.
- The TCFD sees access to better-quality information will allow market participants to better understand and manage these risks, and an early understanding can, in turn, help promote a smooth, orderly market transition to a lower carbon economy
- The final report of the TCFD was released in June 2017. The report is not limited to life insurance companies and suggests financial disclosures that could be adopted across a wide range of industries, recognising that reporting will evolve over time
- Supplemental guidance is issued at a more granular level, broadly categorised into financial and non-financial, with the financial sector further sub-categorised into banks, insurance companies, asset owners, and asset managers.

TCFD recommendations may be relevant both for life insurer's own disclosures but also for the companies they invest in

Institute and Faculty of Actuaries

How is Practice Evolving on Disclosure?

- The TCFD report recommended a four-pillar approach to company disclosure around climate change, shown below:

Governance	Strategy	Risk management	Metrics and Targets
Disclose the organisation's governance around climate-related risks and opportunities	Disclose the actual and potential impacts of climate-related risks and opportunities on the strategy and financial planning of the business	Disclose how the organisation identifies, assesses, and manages climate-related risks	Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities

- The TCFD is also carrying out ongoing monitoring of actual levels and types of disclosures in company reports to see how this is evolving

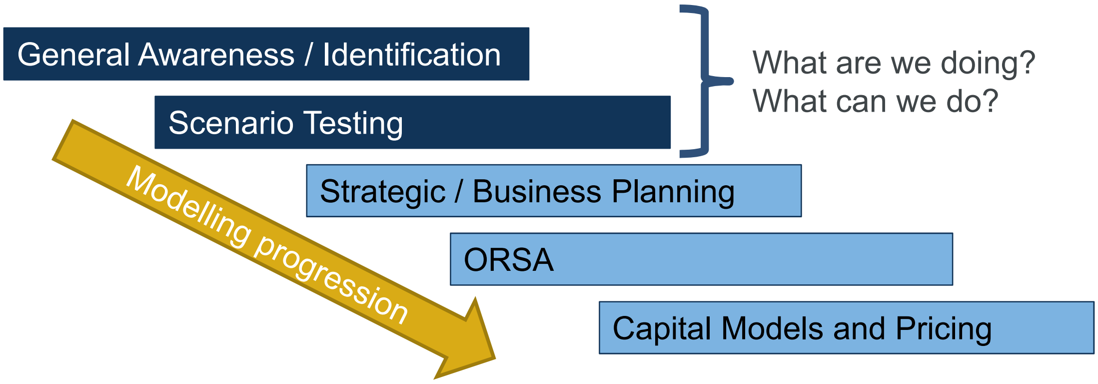
Institute and Faculty of Actuaries

Institute and Faculty of Actuaries

Climate Change and Risk Management

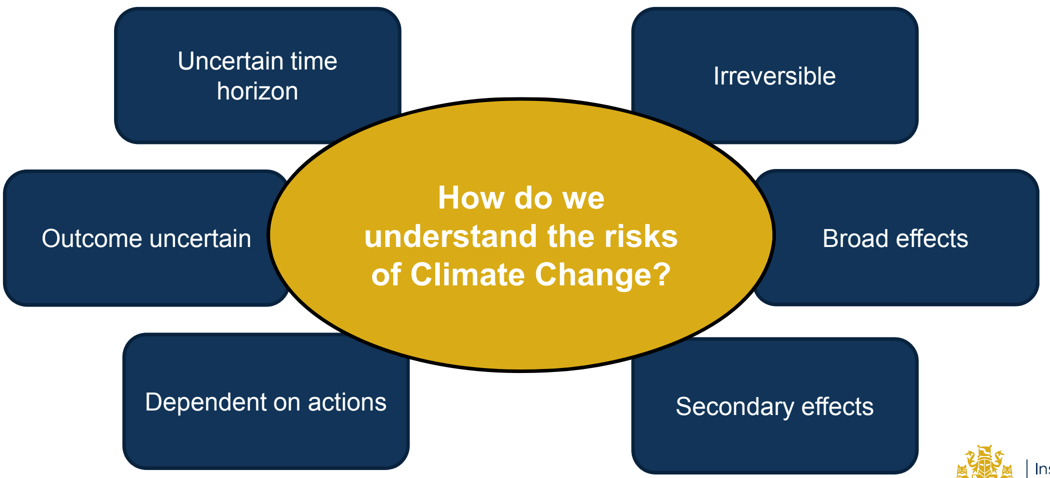
Risk management stages

The maturity of the risk management of Climate Change risks



Institute and Faculty of Actuaries

Risk identification and awareness



Institute and Faculty of Actuaries

Risk identification

Example: A simple risk framework to combine climate risk factors with common insurance framework risks

Risk grouping	Physical	Transition
Market		
Longevity		
Mortality / Morbidity		
Lapse		
Counterparty		
Operational		
Strategic		
Reputational		

Institute and Faculty of Actuaries

Risk identification

Example: Possible risks arising in our framework

Risk grouping	Physical	Transition
Market		
Longevity		
Mortality / Morbidity		
Lapse		
Counterparty		
Operational		
Strategic		
Reputational		

Institute and Faculty of Actuaries

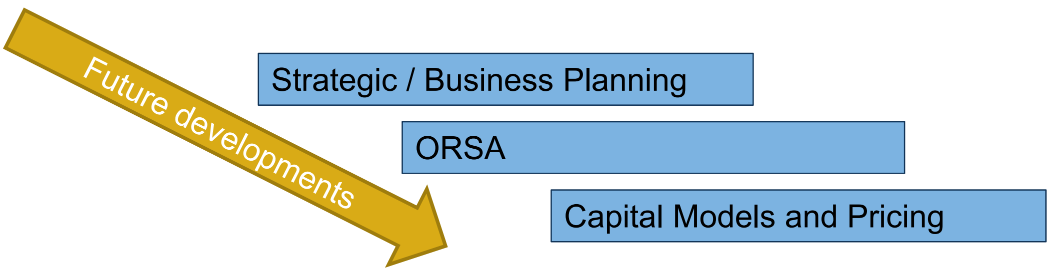
Scenario analysis

What are the key components (and considerations) of scenario planning?

- Multiple scenarios
- Physical and Transition
- Time horizons
- Shocks and Trends
- Internal and External sources
- Management Actions
- Limitations
- Links to risk factors
- Narratives not numbers

Institute and Faculty of Actuaries

Development in risk management



Institute and Faculty of Actuaries

Developing risk management

Applying ERM key principles

- Governance and framework
- Risk Management policy
- Risk tolerance statement
- Risk responsiveness

Enterprise Risk

Risks from climate change

Management

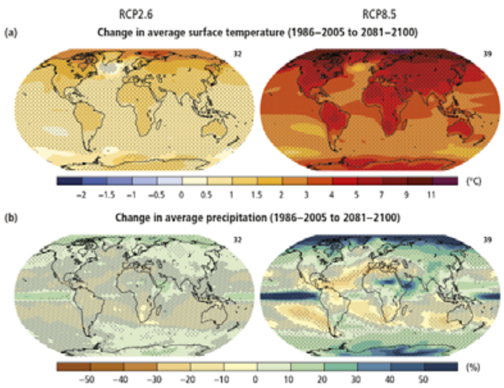
- ORSA
- Economic capital
- Continuity analysis
- Role of supervision

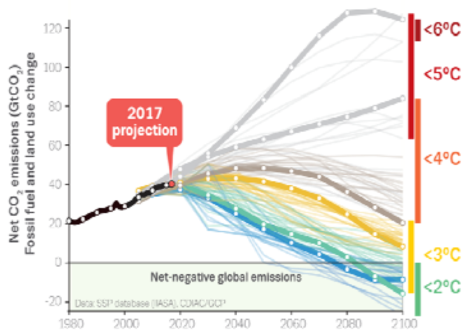
Institute and Faculty of Actuaries

20 November 2018 23

Climate Models

Complex models exist, though not for actuarial purposes





Institute and Faculty of Actuaries

26 November 2018 24

Capital, Demographics, and Pricing

Climate Change capital

Pillar 1

Updates to standard formula

Pillar 2

Inclusion in ORSA scenarios

Capital, Demographics, and Pricing

Risks and risk drivers

Migration

Temperature

Funding

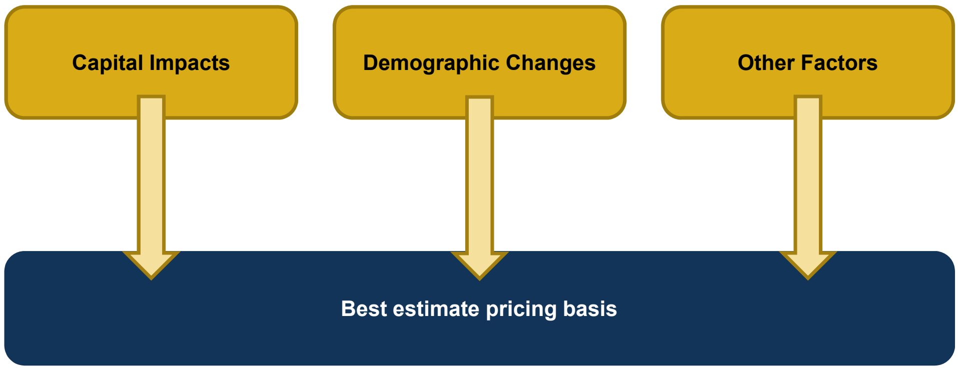
Air Quality

Mortality

Longevity

Morbidity

Capital, Demographics, and Pricing



Institute and Faculty of Actuaries

Institute and Faculty of Actuaries

Opportunities and Next Steps

Opportunities

- **Investment strategy and capital projects**
- **New products and "Green Finance"**
- **Corporate Social Responsibility**

Institute and Faculty of Actuaries

Next steps

- Your role and climate change
- Your company and climate change
- Publications
- Risk framework
- Scenario analysis
- Internal working parties

Institute and Faculty of Actuaries

Next steps

- Climate Change for Life Actuaries working party final paper

Climate Change
A Guide for Life Insurance Actuaries

Draft pending peer review

Institute and Faculty of Actuaries

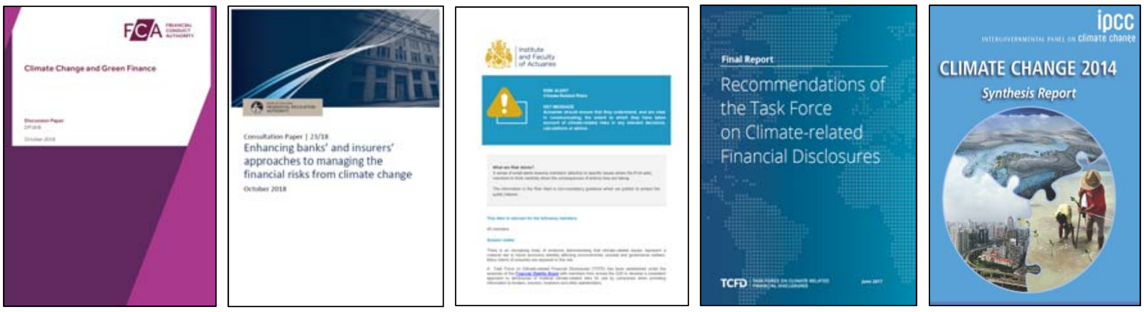
20 November 2018 31

Institute and Faculty of Actuaries

Further reading

20 November 2018

Further reading



FCA PRA IFoA TCFD IPCC

Institute and Faculty of Actuaries

Questions

Comments

The views expressed in this 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 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 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 presentation be reproduced without the written permission of the IFoA.

Institute and Faculty of Actuaries