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## Embedding climate change risk – experiences and insights

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19 November 2019



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## Embedding climate change risk – experiences and insights

What are the risks?

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## Embedding climate change risk – experiences and insights

### Physical risks

#### General insurance losses

- Insured losses for flood, fire, storms etc.
- Increased intensity of losses
- Supply chain disruption



#### Life losses

- More heatwaves increase mortality
- Higher temperatures increase air pollution
- New vector-borne diseases inhabit Europe



#### Impact on asset prices

- Property values fall because of increased flood risk. LTV rises. Credit risk rises because loss-given-default increases.
- Properties become uninsurable, breaching covenants.



#### Modelling changes

- Increased correlations between modelled risks reduces diversification benefit
- Correlations between asset and liability values



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### Transition risks

#### Carbon intensive assets

- Securities from firms directly impacted by regulatory fossil fuel limits
- Securities from energy-intensive firms (e.g. chemicals, metals, construction)
- Accounts for ~30% global equities and FI assets



#### Energy efficiency standards

- Minimum energy efficiency standard (MEES): rentals to properties rated F or G not allowed
- Properties need to be retro-fitted
- Fall in market value, change in LTV
- Period of vacancy
- No clear statement of evolution of standard



#### System shocks

- Carbon taxes in many countries: Europe, Canada, US states, India: what would a substantial rise do?
- At 4°C, is the world insurable?



#### Speed of transition

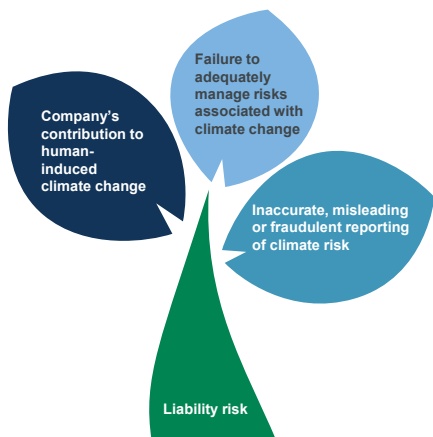
- Magnitude of effect depends on final temperature AND path taken to get there
- Unknown final temperature
- Unknown path



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## Embedding climate change risk – experiences and insights

### Liability risks



- Company's contribution**
  - Saul vs. RWE
  - Urgenda vs. the Netherlands
  - Various local governments vs. fossil fuel companies
  
- Failure to adequately manage the risk**
  - Conservation Law Foundation vs. ExxonMobil
  - Illinois Farmers Insurance Co. vs. Metropolitan Water Reclamation District of Chicago
  
- Inaccurate reporting**
  - Abrahams vs. Commonwealth Bank of Australia
  - ClientEarth regulatory complaints to the FCA
  - New York vs. Exxon Mobil Corp.

Liability risks are a consequence of physical and transition risks. Affects insurers directly (inaccurate reporting), via underwriting (public liability, professional indemnity insurance), and via market value of investments.



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## Regulatory update

What are the risks?

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What should the PRA plans have covered?



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## Embedding climate change risk – experiences and insights

The climate change element of the PRA's Insurance Stress Tests 2019

The PRA's 2019 Insurance Stress Tests, included for the first time a climate change related request.

### Key takeaways

- GI firms invited in 2017, but **first time Life firms** asked to participate
- An **exploratory exercise** to help individual firms and the PRA
- **"difficult-to-assess"** risk - **"best endeavours basis"**
- A **common set of assumptions** underlie each scenario so firms complete the exercise on a **consistent basis**
- Firms may wish to **incorporate into their own stress and scenario testing**
- **Provide details of your own** climate change stress testing scenarios



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#### PRA Stress Test Scenarios

The PRA released three scenarios under which firms were required to stress test their business.

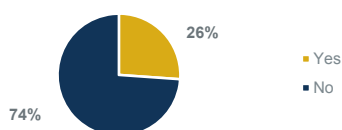
	Scenario A	Scenario B	Scenario C
Description	Minsky moment occurs by 2022, causing a rapid transition	Alignment with the Paris Agreement	'Hot house' scenario with a global temperature increase of 5°C
Outcome	Rapid global action and policies	Long term orderly transition	High physical climate change
Transition	Sudden and disorderly	Orderly	No transition
Transition risk	High	Medium	None
Maximum temperature increase	2°C by 2100	2°C by 2100	5°C by 2100
Time horizon	Medium-term	Long-term	Long-term
Based on	IPCC Fifth Assessment Report	IPCC Climate Change Report, 2014	IPCC Climate Change Report, 2014



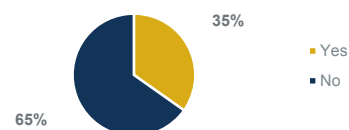
### Embedding climate change risk – experiences and insights

#### How is the industry responding?

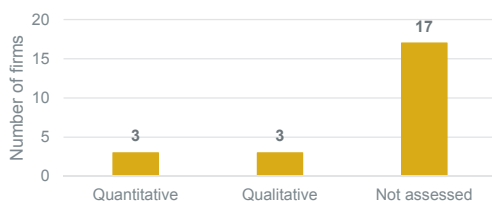
Proportion of firms that have analysed one or more climate scenarios



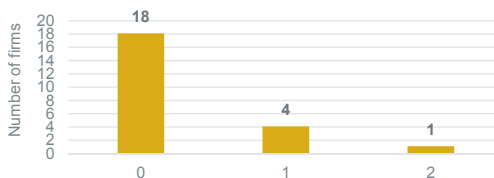
Proportion of firms committed to follow the TCFD statements or similar



How is climate risk assessed?



Number of years for which a firm has produced a TCFD statement





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## Embedding climate risk

### The Journey

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## Embedding climate risk – the journey

- 1 Recognising the issue
- 2 Setting a direction
- 3 Forming groups and getting started
- 4 Harnessing expertise
- 5 Continual improvement



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# 1. Recognising the issue

## Shift in focus

The focus on climate change risk has evolved over the last decade



# 1. Recognising the issue

## Assessing exposure

*Illustrative example: relative balance sheet exposure for a typical UK annuity writer*

Relative risk by category	Physical Risk			Transition Risk		
	Near	Mid	Long	Near	Mid	Long
<u>Market risk</u>						
Credit risk	L	M	H	H	H	M
Property and direct investments	L	M	H	M	H	M
<u>Non-market risks</u>						
Longevity	L	M	H			
Counterparty risk	M	M	H	M	M	M

“PRA considers transition risk to be of most relevance to two tiers of financial assets, accounting for around **30% of global equity and fixed-income investments**”<sup>1</sup>

H=High, M= Medium, L=Low  
 Near = within 5 years, Mid = 5 - 20 years, Long = 20+years

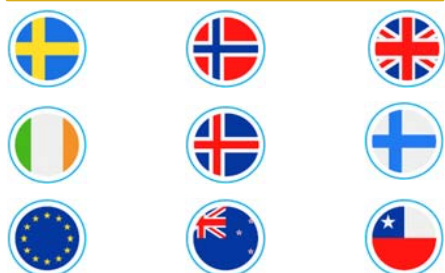
- While the worst effects of climate change are unlikely to emerge for decades, there is a risk that these impacts could be capitalised on the balance sheet within a far shorter timeframe
  - Markets could rapidly reprice climate risks over the short-to-mid term or a divestment trend could cause a sudden devaluation of emissions intensive sectors – a “Minsky moment”.
  - Similarly, assumption changes could capitalise the long term impact of climate change on longevity

## 1. Recognising the issue



### Geography is important

- For global insurers, it is important to understand geographical exposure – both physical and transition risk vary significantly by region
  - For example, although the Paris Agreement has a universal objective, there is significant disparity between individual commitments and USA – the world’s second largest emitter – withdrew from the Agreement in 2017

#### Net zero laws being rolled out



#### Target **increases** in emissions

-  India has not committed to an emissions peak – it is targeting a **70% increase** by 2030
-  China is also targeting an **increase in emissions of 17%**, although it has committed to peak emissions by 2030.



## 2. Setting a direction

### What is your position?

What is your organisation’s stance and strategy on climate change risk? A clear direction provides a framework under which to assess and manage risk.

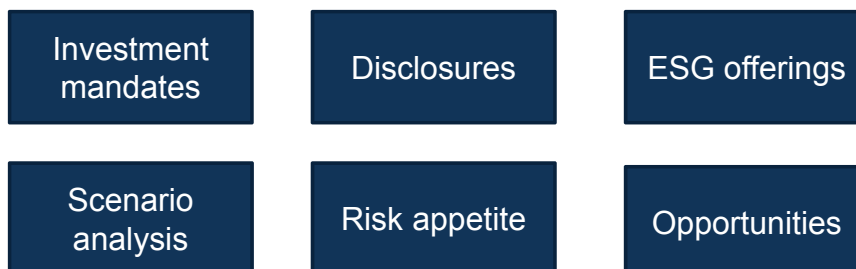




## 2. Setting a direction

### Questions to answer

- It is important to formalise an internal view on the following key areas:



- Internal policies should be joined up with communications and marketing – approaching climate change in silos increases reputational risk



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## 2. Setting a direction

### Case study: L&G's climate change strategy

#### L&G Group – overarching view

- The concept of *inclusive capitalism* is core to our values
- We strongly support the aim of the Paris Agreement of limiting global temperatures to well below 2°C above pre-industrial levels
- Supporting the transition to a low-carbon economy is a strategic priority
- L&G Group CEO – Nigel Wilson – chairs an innovation working group of PRA and FCA's joint Climate Financial Risk Forum



#### Investment management (LGIM)

- Climate engagement programme through the 'Climate Impact Pledge'
- Developed the 'Future World' range of funds to help accelerate the low-carbon transition

**"Legal & General acts against companies that fail to fight climate change"** The Times, June 2018

#### Insurance

- Support group strategy through positioning our own investments
- Embed climate change within IMAs
- Finance low carbon opportunities



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### 3. Forming groups and getting started

#### Create an effective structure

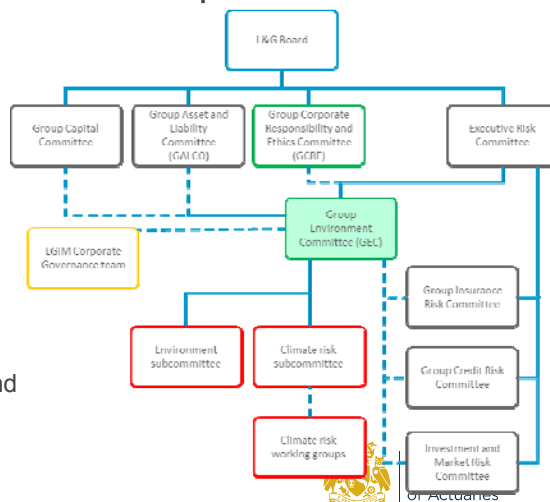
##### Forming groups to tackle climate change risk

- Climate change can be an emotive topic, but financial risks need to be considered objectively
- Need a diverse range of stakeholders and SMEs (e.g. investments, longevity, CSR, risk teams)
- Set up working groups to tackle specific and detailed areas (e.g. scenario analysis and disclosures)

##### Creating a structure

- Critical to have an effective structure to maintain momentum
- Need support from the Board, senior leadership team and management
- Create formal committees with teeth to set the direction and ensure adherence to policies

Example: L&G's structure



### 3. Forming groups and getting started

#### Make a start, no matter how small

- It will take several years before the industry builds capability in assessing and managing climate change risk
- Some companies are more advanced than others, but the key is to make a start and then build on this in future years
- For example, L&G released TCFD reports for year-end 2018 and is currently developing scenario analysis to better assess the financial risks of climate change

*"As a firm's expertise develops, the PRA expects the firm's approach to managing the financial risks from climate change to mature over time." SS3/19*



## 4. Harnessing expertise

### *Draw on expertise within your organisation*

- Climate change affects a wide range business areas, so it is important to seek views from a range of experts:
  - Credit and market risk – How could climate change affect credit ratings, migrations and defaults?
  - Longevity risk – How would longevity be impacted under different warming scenarios?
  - Investments – How to align with climate strategy without sacrificing investment returns?
  - Communications – How can we raise the bar on our climate disclosures?
  - Risk – How to create an effective framework for managing climate change risk?
- Bring experts together to help develop climate change scenario analysis
  - Define various narratives, e.g. orderly transition (Paris agreement), disorderly transition, breakdown in mitigation
  - Seek expertise to translate a particular narrative into financial impacts, e.g. what could happen to UK mortality rates in a 4°C warming scenario?
  - Actuaries are well placed to support scenario analysis work – they have a wealth of experience in assessing financial uncertainty over long horizons. In particular, they can provide valuable input into translating a given warming scenario into credit/longevity/other stresses and can help identify and communicate limitations of scenario analysis.



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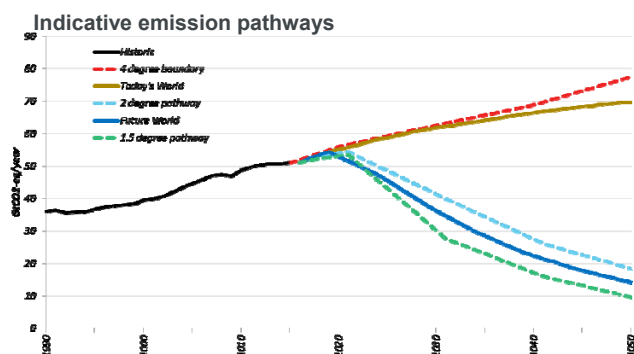
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## 4. Harnessing expertise

### *Case study: LGIM energy transition model*

- LGIM developed an energy transition model to analyse the various potential pathways to meeting the Paris Agreement ('future world') – this is key to understanding transition risk



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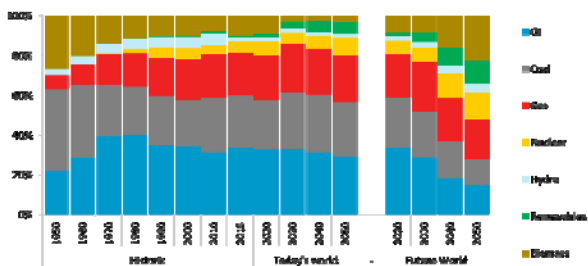
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## 4. Harnessing expertise

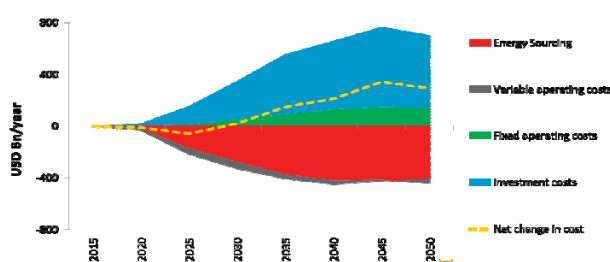
### Case study: LGIM energy transition model

- Meeting the Paris Agreement will require a fundamental shift in the global energy mix; it will require significant investment over the new few decades.
- Modelling the energy transition helps inform investment decisions and risk assessments.

Projected change in energy mix



Net cost of energy transition



Source: LGIM Analysis, Baringa Partners



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## 4. Harnessing expertise

### Internal versus external

It may be efficient to draw on external expertise in certain areas

#### Carbon disclosure data

Various providers have already sourced and summarised data on core metrics for both physical and transition risk

#### Education

- Board and management training
- Advice from climate experts to fill gaps in knowledge of the underlying science

#### Scenario analysis

- Purchase an off-the-shelf model or seek support to develop a bespoke one
- Use defined reduction pathways

#### Benchmarking

- Sense check your position and progress compared to the industry



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## 5. Continual improvement

### Areas of future development



#### Scenario analysis

- Improve models and techniques, particularly for translating climate scenarios to financial impacts
- Clearer link between emission reduction pathways and investment profile

#### Climate related data and disclosures

- Increased pressure on companies to disclose exposure to climate change
- Better data will enable better analysis

#### Capital and internal models

- Premature to explicitly model climate risk factors – embedded in existing risk factors
- Develop internal models to better capture exposure within investment portfolio
- Greater use of internal models to inform risk tolerances

#### Products and ESG options

- Increasing demand for climate related ESG themes
- Emergence of new products or product lines

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Questions

Comments

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