

# Business and Climate Risk: Using Scenarios to Deal with Uncertainties

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# Structure

- **Part 1: Why climate change matters to business**
- Part 2: Implications for business strategy: possibilities of managing the transition
- Part 3: Identifying and analysing business risk

# The growth story of the future

- **Growth, sustainable development, poverty reduction and climate change** are complementary and interwoven. (“Better Growth, Better Climate”, NCE, 2014; “Why are we Waiting?” MIT Press, Stern, 2015; “The Sustainable Infrastructure Imperative”, NCE, 2016; “Delivering on Sustainable Infrastructure for Better Development and Better Climate”; Bhattacharya et al., 2016)
- **Opportunity to:**
  - Boost ***shorter-run growth*** from increased investment demand in the low-carbon transition, plus improving supply (sustainable infrastructure);
  - Spur innovation, creativity and ***growth in medium term***;
  - Provides the ***only feasible longer-run growth*** on offer.
- A growth story that delivers: **inclusive growth and poverty reduction; rising living standards across the dimensions of well-being; cities where we can move and breathe; ecosystems that are more productive and resilient...**

# Climate change differs from the environmental problems of the past

- The structure of the science of climate change creates **four major difficulties for public understanding** and **collective action**:
  - **Immense scale of impacts:** would likely redefine where people can live and destroy livelihoods for many (inundation or desertification); lead to migration of hundreds of millions, possibly billions, and serious, widespread and extended conflict.
  - **Large risk/uncertainty:** have not seen 3°C for around 3 million years and 4 or 5°C for tens of millions. Climate history tells us that major transformations are likely but hard to predict when and where.
  - **Long lags in consequences:** accumulation of emissions to concentrations of GHGs takes time; gradual changes are experienced until tipping points are reached (large-scale forest die-back, ocean currents shut down, melting permafrost...)
  - **'Publicness' of the causes and effects:** it is the sum of emissions that matters irrespective of when they occur; climate change is the **"greatest market failure** the world has ever seen" (Stern Review, 2006).

# Delay is dangerous

- Uncertainty and ‘publicness’ of the causes might suggest delay to learn more, this would **be a profound mistake**
  - The “**ratchet effect**” from flows of GHGs to concentrations (CO<sub>2</sub> hard to remove).
  - **Dangers of “locking in”** long-lived high-carbon capital/infrastructure. This involves **either** commitment to high emissions **or** early scrapping of capital/infrastructure.
  - Rapid urbanisation and building of infrastructure, driven by middle-income countries in the developing world
  - Potential devastating impacts on ecosystems, biodiversity, forests, water, air quality; possibility of reaching irreversible tipping points.
- **Delay increases reliance** on unproven future technologies (e.g. negative emissions) or more ambitious action in future (politically feasible?).

# 2015/2016: a new global agenda

- 2015 and 2016 **breakthrough years for global collaboration** around climate change and development. **First shared global agenda since agreements after WW II.**
- **Agenda for action has been set** with agreements on:
  - Financing for development in Addis (July 2015)
  - ***Sustainable Development Goals (Sep 2015)***
  - ***Paris Agreement on Climate Change (CoP 21) (agreed Dec 2015, entered into force in Nov 2016; very rapid ratification)***
  - Kigali Amendment to the Montreal Protocol on HFCs (Oct 2016)
  - New Urban Agenda (Oct 2016)
  - Marrakesh Action Proclamation For Our Climate And Sustainable Development (Nov 2016)

# Climate change risks are pervasive through sectors and economies

- “Shifts in our climate bring potentially profound implications for insurers, financial stability, and the economy” (Carney, 2015).
- Already at 1°C we see increasing trend in the number and impacts (deaths, injuries, economic losses) of all types of natural disasters (IPCC, 2012). Already at edge of temperature range of Holocene (since the last ice age). 2°C much more dangerous.
  - 2016 saw the highest natural disaster losses of the past four years: at £130 bn, with around 70% of those losses not covered by insurance (Munich Re, 2016).
  - Hurricane Matthew was the most powerful hurricane to hit the North Atlantic for almost ten years. Harvey, Irma and Maria most likely trigger around \$700m in claims during the third quarter in 2017 (Zurich Insurance Group).
  - The total economic damages for England and Wales from the winter 2013 to 2014 floods were estimated to be over £1,3 bn (Environment Agency, 2016).
- **This has severe repercussions for business and their supply chains**
  - The effects of the Thai floods of 2011 rippled through international supply chains disrupting the supplies and logistics of UK businesses. In the UK, Honda cut production at its Swindon plant by 50% and delayed the launch of a new model. Extreme events in 2011, including flooding and drought, cost Unilever over £ 180 million (Environment Agency, 2013).

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# Managing climate risk to support growth and stability: public policy

- Government policy should be **clear, credible and predictable**. Will need to foster innovation and R&D, develop relevant capital markets, promote infrastructure and networks; deal with pollution. Change will be necessary as learning occurs: be “predictably flexible”.
- A well-designed **carbon price** is an indispensable part of a strategy for reducing emissions in an efficient way. Enables markets to signal costs and businesses to respond to sound incentives.
- Well planned **cities** are central.

**If well-anticipated and actively managed, just transitions are possible.**

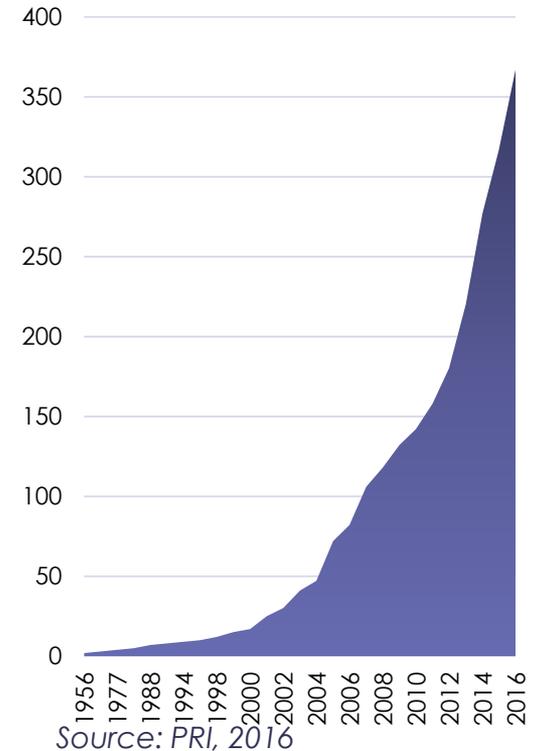
## Managing climate risk to support growth and stability: firms

- Firms should work with governments to establish structures that can foster sustainable private sector investment.
- Be **transparent** on future plans and “**future-proof**” investments in relation to climate policy.
- Work with **cities** and **universities** to innovate.
- It is crucial to recognise early on the risks of **stranded assets**; should move to the forefront of investment decisions of asset managers and owners.
- In particular, given the imperative and the likelihood of a relatively fast phase down of **global coal use** from now onwards, stakeholders need to begin a managed and controlled transition today; similarly **internal combustion engine** from 2020s.

# Financial actors and policy are moving

- ~400 initiatives provide information on the costs, opportunities and risks climate change poses; over 90% of FTSE 100 firms and 80% of Fortune Global 500 firms participate in these various initiatives (Carney, 2015).
- Swedish National Pension Fund (AP4) has made the **biggest low-carbon commitment of any institutional investor** to date: ~£2.5 bn in passive investment funds designed by MSCI. Intend to decarbonise ~£11 bn global equity portfolio by 2020.
- Denmark's fourth-largest pension fund, with €35.5bn in assets, has asked 53 companies that generate between 25 - 50% of their revenues from coal to **provide plans on how they will reduce reliance**.
- July, 2017: Commitment by **eleven major banks** to implement TCFD recommendations and develop indicators and analytical tools to strengthen their assessment as well as disclosure of climate-related risks
- 2015: First legislated mandatory requirements for institutional investors as part of Article 173 of the Law for the Energy Transition and Green Growth in **France**.
- 2014: **EU's Non-Financial Reporting Directive** which requires approximately 6,000 large companies to disclose information on environmental and social aspects from 2018 onwards.

Cumulative number of responsible investment policy actions across time



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# Modelling climate change risks and scenarios

- **Overall scenarios**, e.g. as in Shell's longstanding approach, for world as a whole are **transparent** and **more useful** than detailed probabilities coming out of current climate "integrated assessment models". These are difficult to understand, make very misleading assumptions on impacts and technology, and treat risk inadequately.
- **Scenario modelling** can strengthen companies' risk management and strategic decision-making.
- It can also help take advantage of **business opportunities** that the transition presents, including investment in renewables, sustainable agriculture, forestry, public transportation, or other diversification strategies (Staker et al., 2017). See also Business Sustainable Development Commission.
- **Limitations of scenario analysis**: In particular, the nature and rate of technological innovation are difficult to anticipate, e.g. IEA has repeatedly underestimated speed of deployment of renewables. At time of Stern Review, did not foresee pace of progress in renewables, electric cars, materials, IT management of energy demands and supplies...

# Dealing with risks in a business setting

- Sound management of risk is a crucial determinant of the success of a company or project – requires analysis and understanding of risk at both **macro and micro levels**.
- Risk identification that establishes the exposure of the organisation to risk and uncertainty requires **intimate knowledge of the organisation** and the market, legal, social, political and cultural environment in which it operates, as well as an understanding of strategic and operational objectives (FERMA, n.d.).
- Potential mismatches:
  - **Mismatch in time:** need to align timescale of climate risks materializing with forward-looking risk analysis – avoiding the 'Tragedy of the Horizon' (Carney, 2015)
  - **Mismatch in scale:** while many of the current climate scenarios are at a high level, firms will need granular and sector-specific analysis to identify relevant risks and opportunities

# Scenarios are a part of a strategic response to climate change

- Given **limitations in economic modelling**, must make decisions while aware of significant uncertainties
- **Scenario-analysis** is part of larger governance and risk management process, as noted by TCFD recommendations
- Firms can **mainstream climate change**: not only as a CSR issue or a form to be filled out, but as a vital part of good corporate governance

## Core Elements of Recommended Climate-Related Financial Disclosures



Source: FSB TCFD, 2017

# Responsibilities

- **Governments** to understand and communicate urgency and scale
- **Governments** to participate constructively in international action and collaboration, including through international institutions.
- **Governments** to set clear, credible sound and predictable policies that tackle the market failures and give basic picture of where the sustainable economy is going.
- **Firms** – Company boards should be able to demonstrate to investors and other stakeholders that they have considered the implications for their business strategies of both the profound risks and the great opportunities associated with impacts of climate change and the transition to the low-carbon economy.
- **Firms** – This means understanding the uncertainties about the scale and pace of the transition, and the potential to be directly and indirectly affected, including through supply chains. It also means the opportunity to participate in the **growth story of this century**.