



Putting environmental scenario analysis into practice

Dr Nina Seega
22nd March 2018

Welcome and introduction to the project

Robert Atwell, Makaio Witte, Dr Nina Seega

Agenda

- 09.00 **Welcome and introduction to the project. Physical sources of financial risks**
- 10.30 **Coffee**
- 11.00 **Group work on physical sources of financial risk**
- 13.00 **Lunch**
- 14.00 **Transition sources of financial risk. Group work on transition sources of financial risk**
- 15.30 **Coffee**
- 16.00 **Group work on governance and disclosure**
- 17.00 **Wrap up**

CISL: A unique Cambridge institution

25+ years of building strategic leadership capacity to tackle critical global challenges

60 staff in Cambridge, Brussels, Cape Town

Patron:
HRH The Prince of Wales

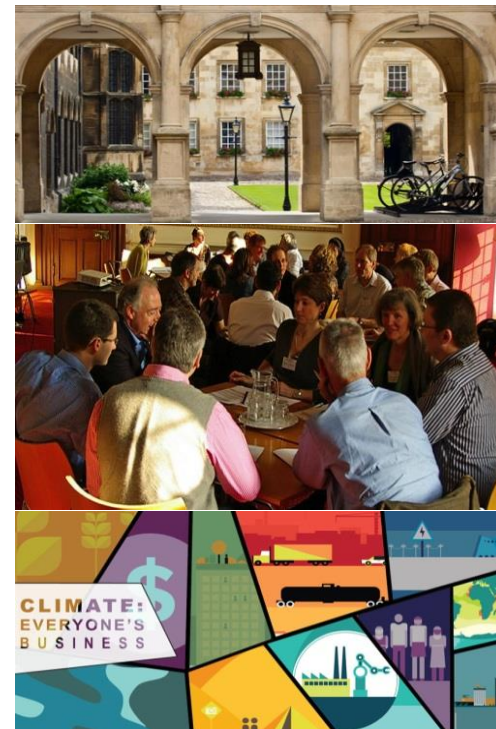
Active network of more than **7,000 members**

Executive and graduate education

Business and policy leaders groups

- Low carbon transformation
- Sustainable finance (banking, insurance, investment)
- Resource security

Independent research



University of Cambridge Institute for Sustainability Leadership team

Dr Nina Seega, Research Director, Sustainable Finance

Andrew Voysey, Director, Sustainable Finance

Dr Tom Herbstein, ClimateWise

Elsbeth Donovan, CISL South Africa Office

Alice Cropper, CISL South Africa Office

Embedding environmental scenario analysis in financial decision-making

Aim: improving the integration of environmental risk into financial decision-making in South Africa and Mexico.

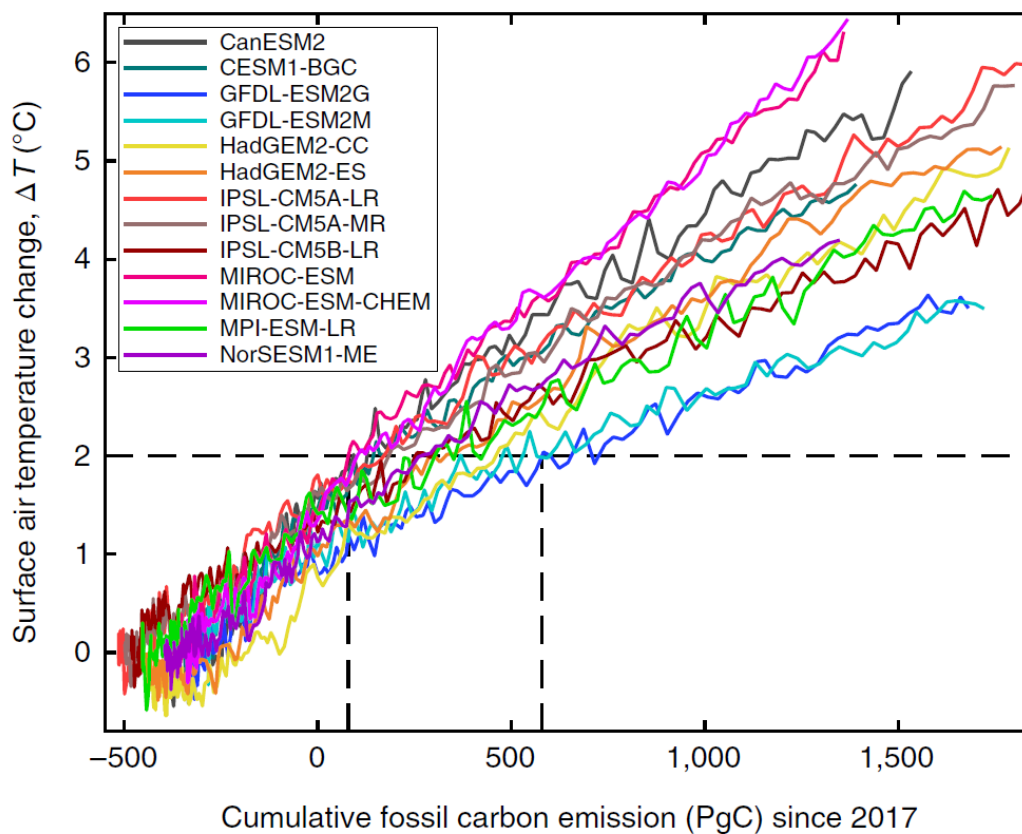
Project partners in South Africa: University of Cambridge Institute for Sustainability Leadership, GIZ, South African National Treasury.

Output: tailor-made primers for the South African and Mexican regulators and financial firms on how to develop environmental scenario analysis relevant to their own national contexts.

Timeline:

1. Initial research and design
Dec 2017 - Feb 2018
2. Test thinking in country contexts
Mar-May 2018
3. Final research and design
Jun-Aug 2018
4. Launch and dissemination
Sep-Nov 2018

Embedding environmental scenario analysis in financial decision-making



Greening the financial system

“Environmental risks and opportunities” are not new.

But they (and our exposure to them) are changing in profound ways: scale + likelihood + interconnectedness = materiality and complexity.

Are mainstream tools and techniques keeping up?

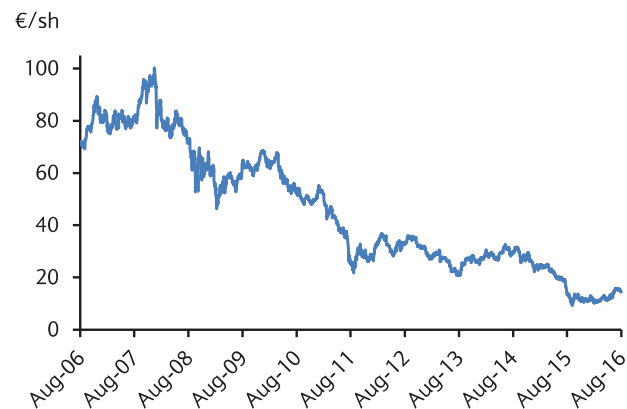
1. Managing risk is central to the safety of firms and the stability of the financial and economic system.
2. All capital is deployed on the basis of expected “risk-adjusted” returns.

E.ON share price over, August 2006-to date



Source: Datastream

RWE share price, August 2006-to date



Source: Datastream

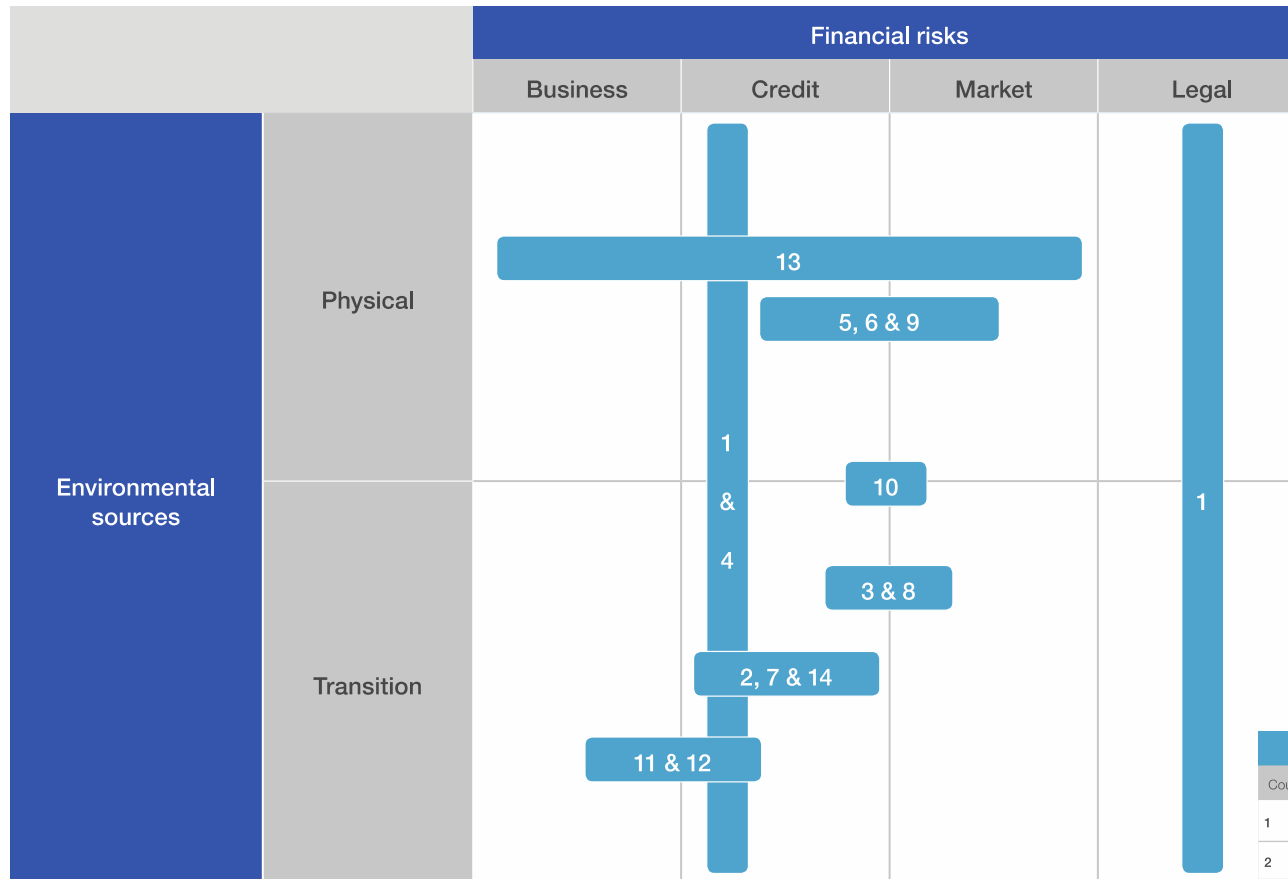
Source © Barclays “Scoping the ‘Tragedy of the Horizon’” 1st September 2016

The link between environmental sources of risk and financial risks

		Financial risks			
		Business	Credit	Market	Legal
Environmental sources	Physical				
	– Climatic				
	– Geologic				
	– Ecosystems				
	Transition				
	– Policy				
	– Technology				
	– Sentiment				

Source © Andreeva, N, Voysey, A. (2016). 'Environmental risk analysis by financial institutions: a review of global practice.' Background paper for the G20 Green Finance Study Group.

Case studies of environmental risk analysis by financial institutions



Key			
Country	Sector	Country	Sector
1	Brazil	Banking	8 Netherlands
			Financial sector
2	China	Banking	9 South Africa
			Insurance
3	Germany	Investment	10 Switzerland
			Banking
4	India	Banking	11 United Arab Emirates
			Banking
5	International	Ratings agency	12 United Kingdom
			Banking
6	International	Banking & investment	13 United Kingdom
			Insurance
7	Italy	Banking	14 United States
			Banking

Scenario-based approaches in orange



Physical sources of financial risk

Dr Nina Seega, Makaio Witte

Global: measuring the impact of physical sources of risk on sovereign debt ratings

		Financial risks			
		Business	Credit	Market	Legal
Environmental sources	Physical				
	– Climatic				
	– Geologic				
	– Ecosystems				
	Transition				
	– Policy				
	– Technology				
	– Sentiment				

Organisation

S&P Global Ratings and Swiss Re

Geography

Expertise from across Europe, applied globally

Financial Sector

Insurance and credit rating agencies

Environmental source of risk

Physical

Tools or approach used

Probabilistic modelling, with sovereign credit risk analysis

Motivation

Investigation of possible credit and market risk

South Africa: Understanding the impact of climate change on a locality in South Africa

		Financial risks			
		Business	Credit	Market	Legal
Environmental sources	Physical				
	– Climatic				
	– Geologic				
	– Ecosystems				
	Transition				
	– Policy				
	– Technology				
	– Sentiment				

Organisation	Santam
Geography	South Africa
Financial Sector	Insurance
Environmental source of risk	Physical
Tools or approach used	Scenario analysis and systems models
Motivation	Investigation of possible credit and market risk

Switzerland: Stress testing balance sheet and client vulnerability to climate change risks

		Financial risks			
		Business	Credit	Market	Legal
Environmental sources	Physical				
	– Climatic				
	– Geologic				
	– Ecosystems				
	Transition				
	– Policy				
– Technology					
– Sentiment					

Organisation

UBS

Geography

Switzerland, applied globally

Financial Sector

Banking

Environmental source of risk

Physical and transition

Tools or approach used

Top-down balance sheet stress testing as well as bottom-up stressing of targeted sectors

Motivation

Management of climate-related risks, on behalf the bank and its clients, as part of a broader climate change strategy

Group work physical sources of financial risk

Dr Nina Seega, Elspeth Donovan, Alice Cropper

Group work on physical sources of risk

11.00 – 11.20 Fill out questionnaire

11.20 – 12.00 Discussion about material physical risk scenarios and methodologies required

12.00 – 12.15 Check in with the group

12.15 – 12.45 Discussion about challenges of using environmental scenario analysis

12.45 – 13.00 Check in with the group

Transition sources of financial risk

Dr Nina Seega, Dr Tom Herbstein

Netherlands: The Dutch Central Bank's review of sectoral exposure to energy transition risks

		Financial risks			
		Business	Credit	Market	Legal
Environmental sources	Physical				
	– Climatic				
	– Geologic				
	– Ecosystems				
	Transition				
	– Policy				
– Technology					
– Sentiment					

Organisation

Dutch Central Bank: De Nederlandsche Bank ('DNB')

Geography

Netherlands, Investment and Insurance

Financial Sector

Banking

Environmental source of risk

Transition

Tools or approach used

Regulatory strategic review, supported by industry exposure data

Motivation

Analysis of sector wide vulnerability to transition risks

China: Stress testing the impact of environmental factors on a Chinese commercial bank's credit risk

		Financial risks			
		Business	Credit	Market	Legal
Environmental sources	Physical				
	- Climatic				
	- Geologic				
	- Ecosystems				
	Transition				
- Policy					
- Technology					
- Sentiment					

Organisation	Industrial and Commercial Bank of China (ICBC)
Geography	China
Financial Sector	Banking
Environmental source of risk	Transition
Tools or approach used	Stress test
Motivation	Impact of environmental factors on credit risk

Germany: understanding the impact of transition sources of risk on equity valuation

		Financial risks			
		Business	Credit	Market	Legal
Environmental sources	Physical				
	– Climatic				
	– Geologic				
	– Ecosystems				
	Transition				
– Policy					
– Technology					
– Sentiment					

Organisation

Allianz Global Investors and Allianz Climate Solutions

Geography

Germany, with international application

Financial Sector

Investment

Environmental source of risk

Transition

Tools or approach used

Firm-level modelling of carbon- and energy-regulation under different scenarios

Motivation

Evaluation of carbon risk in equity analysis and valuation

Global: understanding the impact of changes in climate change sentiment on investment portfolios

		Financial risks			
		Business	Credit	Market	Legal
Environmental sources	Physical				
	– Climatic				
	– Geologic				
	– Ecosystems				
	Transition				
– Policy					
– Technology					
– Sentiment					

Organisation

University of Cambridge

Geography

International

Financial Sector

Investment

Environmental source of risk

Transition

Tools or approach used

Oxford Economics GEM

Motivation

Analysis of the impact of sentiment change on investment portfolios

Group work on transition sources of financial risk

Dr Nina Seega, Elspeth Donovan, Alice Cropper

Group work on transition sources of risk

14.30 – 15.15 Discussion about specific South African challenges in transition to a low carbon world

15.15 – 15.30 Check in with the group

Group work on governance and disclosure

Dr Nina Seega, Elspeth Donovan, Alice Cropper

Group work on governance and disclosure

15.30 – 16.15 Discussion about disclosure and regulatory support

16.15 – 16.30 Check in with the group

Wrap Up

Dr Nina Seega, Dr Reshma Sheoraj

Thank you!

Please contact:

Dr Nina Seega,
Research Director, Sustainable Finance

Nina.seega@cisl.cam.ac.uk

or

Andrew Voysey,
Director, Sustainable Finance

Andrew.voysey@cisl.cam.ac.uk

www.cisl.cam.ac.uk