



Institute
and Faculty
of Actuaries

Climate change-related disclosures:

We'll be using the IFoA App
for a quick survey.
Please have it ready

Russ Bowdrey FIA
Aviva

18 November 2019



how they're changing our business



“

WHY?

”

18 November 2019

2

WESTMORLAND.

O that we now had here
But one ten thousand of those men in
England that do no work to-day!

KING: (paraphrased slightly)

“Nah, bro! We’ll be fine 😊

We’re the people with the right tools.
And this is about survival.

It is our DUTY to try

If we fail, **then at least we did try, and
Not just for us...**and if we succeed then
How few we are didn’t matter...

We lucky few...We band of brothers...”

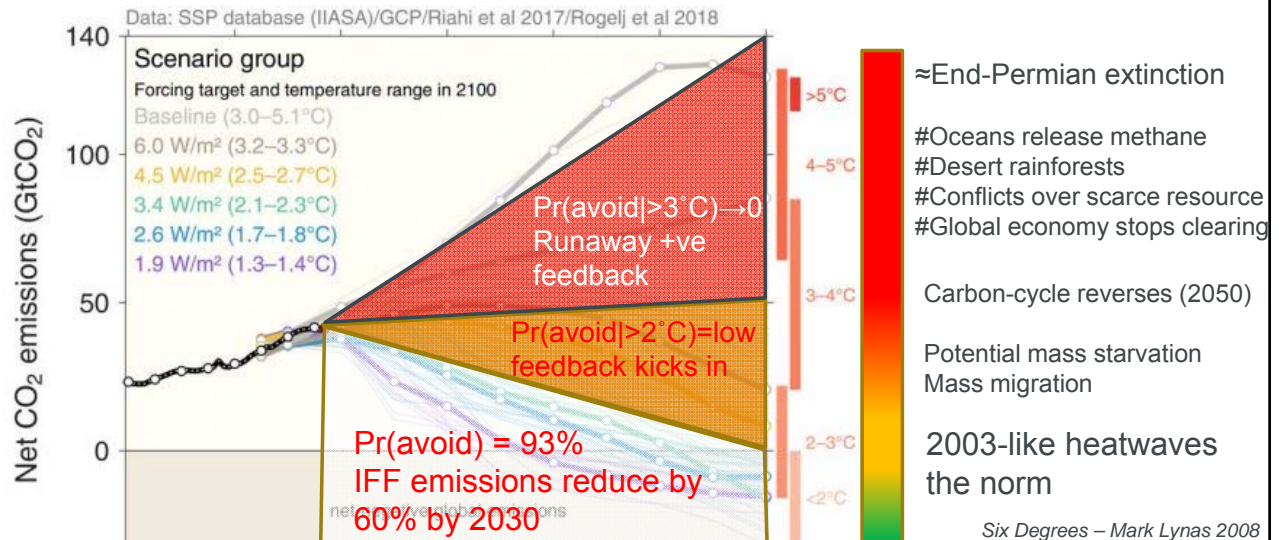
Inspired by Henry V, Act 4.3



“

WHY?”

The science is now irrefutable – and of course there is uncertainty



But uncertainty is not a good reason for inaction

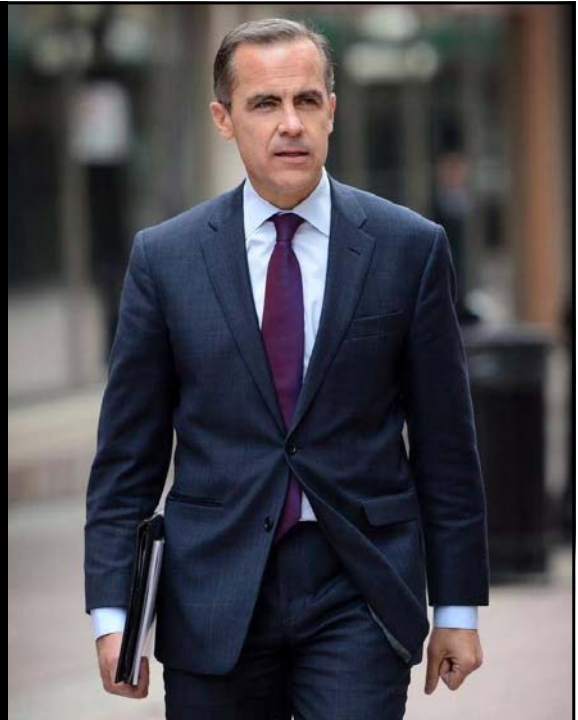
5





“ Once climate change becomes a defining issue for financial stability, it may already be too late.”

Mark Carney, Tragedy of Horizons, 2015



MY CONCERNED FACE

*Do I Look Concerned Enough?
I've Been Practicing All Week*

The regulator is deeply concerned

See PRA SS 3/19

But arguably lacks the mandate/instruments to affect a change by force/coercion

Politifake.org

10

Why?

It's systemic and the PRA have high expectations

- The CRO/Chief Actuaries' frame of reference: PRA SS 3/19

"Climate change, and society's response to it, present financial risks which are relevant to the PRA's objectives..."

"**ORSA**...should include at a **minimum**...all material exposures relating to the **financial risks** from climate change"

"... few firms are taking a strategic approach that considers how actions **today** affect **future** financial risks."

"...(robust) **governance**...embed climate change into **existing risk management**..."

"...use **long term scenario analysis** to inform strategy"

Aviva: PRA 18 November 2019

11



Investors
control
the flow of
capital



Underwriters
control
coverage to
do business



The flow of capital determines who gets the
financing to succeed

18/11/2019

13



my “why”...

18 November 2019

15

This is my “why”...

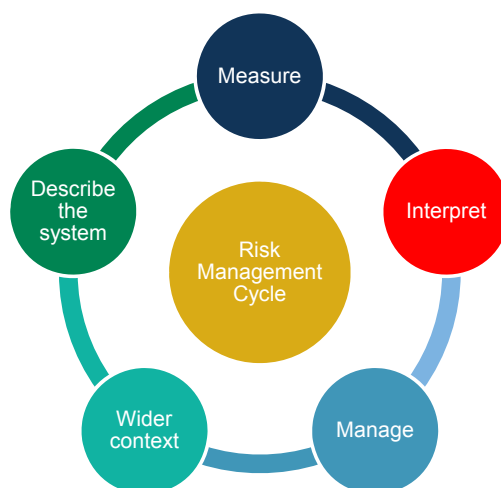
18 November 2019

Measurement is the first step to management



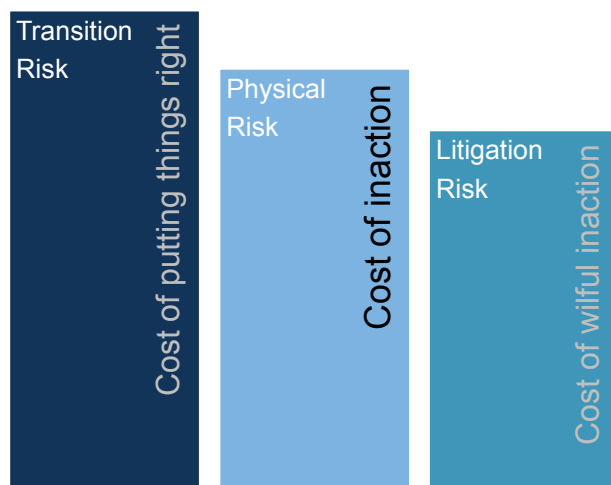
Institute
and Faculty
of Actuaries

But you need to understand what you're looking at...



Institute
and Faculty
of Actuaries

3 Pillars of climate change's financial impact



Institute
and Faculty
of Actuaries

Aviva: 18 November 2019

19



Transition risk: the cost of putting things right

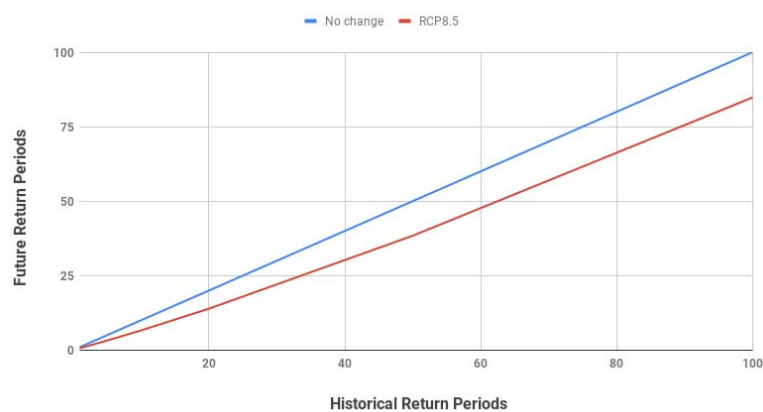
18 November 2019

20



Physical risk: leveraging catastrophe models

Future changes in windstorm for Great Britain



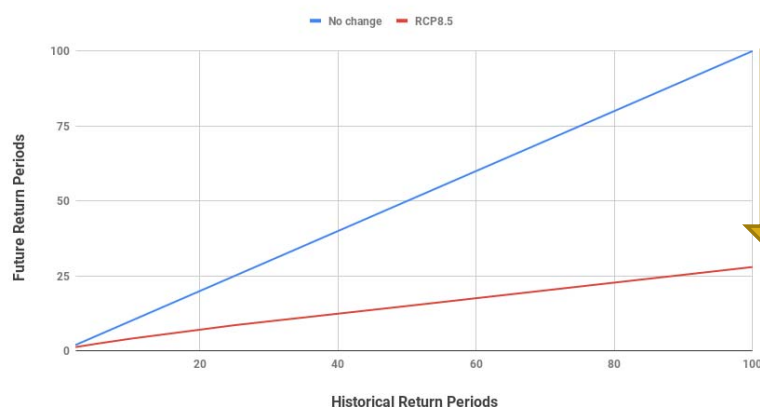
In a “BAU” scenario, the 1-in-100 year event could become the c.1-in-90



Institute
and Faculty
of Actuaries

Physical risk: leveraging catastrophe models

Future change in floods for Northumbria in 2050



In a "BAU" scenario, the 1-in-100 year event could become the c.1-in-30



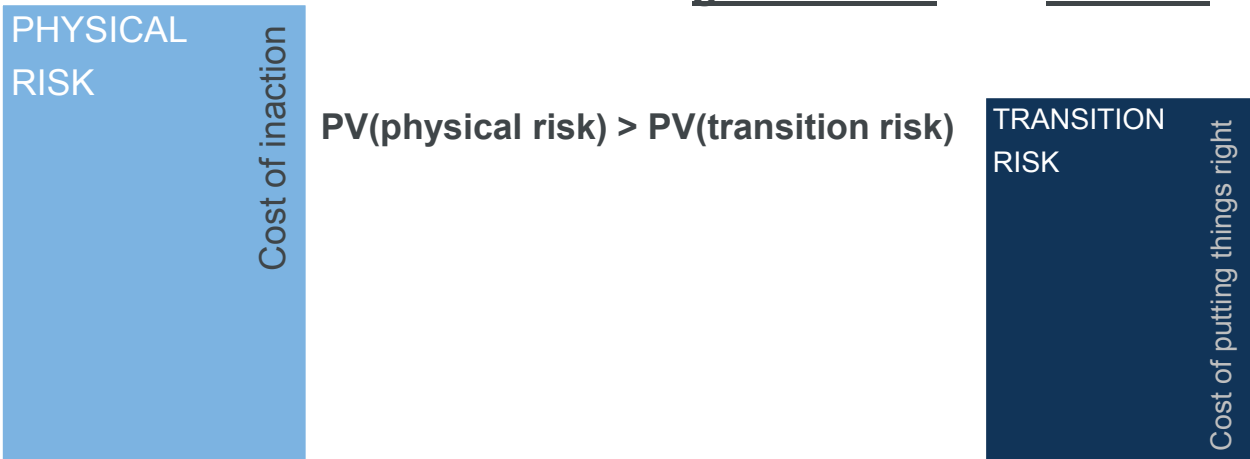
Institute
and Faculty
of Actuaries

Litigation risk:
It's all their fault!



What the modelling tells us

There is **greater cost** from **inaction**



Aviva: P18 November 2019

25

What the modelling tells us

- The output is decision useful, despite the uncertainty
- Simple actions can have large impacts
 - Typical of first passes through unmanaged risks
- Modelling sophisticated but immature
 - How useful are dollar losses given the huge modelling uncertainty?
- Learning to interpret the data
 - Expert insight, pragmatism experience required.



Aviva: P18 November 2019

26

Why should you carry on listening?

Mandatory reporting is around the corner

Wow the PRA with your insights!

The PRA expects climate change to be integrated from the Board down

Competitive advantage



Institute
and Faculty
of Actuaries

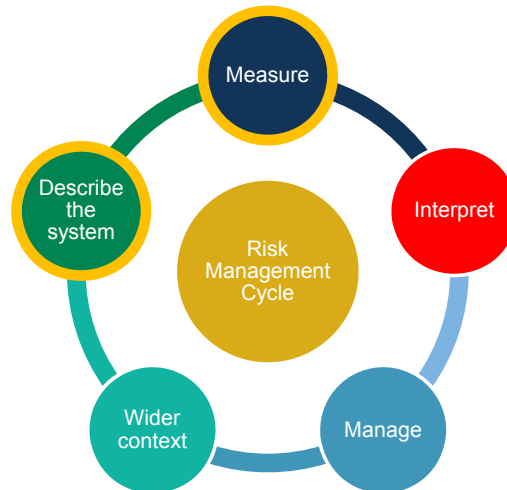
“The how-to bit” - Aviva’s TCFD journey: Governance

- Executive sponsors
- Run out of Risk function
- Very wide participation
 - Investment | Actuarial | Underwriting | Reinsurance | Risk | Public policy...
- Governance in line with risk calibration
 - Expert judgement panels
 - Robust challenge from wide body of stakeholders
 - External expert input and specialist review



Institute
and Faculty
of Actuaries

Stepping through...



Institute
and Faculty
of Actuaries

“The how-to bit” – Getting the modelling done

- The modelling is specialist and deeply non-trivial
- Growing number of specialist vendors
- Physical risk is similar, but vitally different, to catastrophe modelling
- Transition risk requires strong skills in:
 - Cost projection
 - Company valuation
 - Instrument valuation
 - Scenario analysis
- Litigation risk requires deep legal, policy and climate change knowledge



Institute
and Faculty
of Actuaries

“The how-to bit” – Data is crucial

- Listed securities are relatively easy
- Unlisted less so
- Real estate-linked
 - Location and building type needed for physical
 - Transition risk data is a challenge, so modelling needed
- Sovereigns is a puzzle
 - Large portfolio exposures
 - Opaque and complex exposure to climate change
 - Based our analysis on ND-GAIN, but room for improvement



Institute
and Faculty
of Actuaries

“The how-to bit” – Outputs by pillar

- Dollar “losses”
 - Be wary of Climate “VaR” measures, is it a Value at Risk or stressed value?
 - Take time to due diligence the modelling
 - How meaningful/useful is a dollar loss?
- Some providers output exposure indices
 - More intellectually honest? More useful?
- How will we use this data?
 - Share it and walk through
- How trustworthy is it for BIG decisions?



Institute
and Faculty
of Actuaries

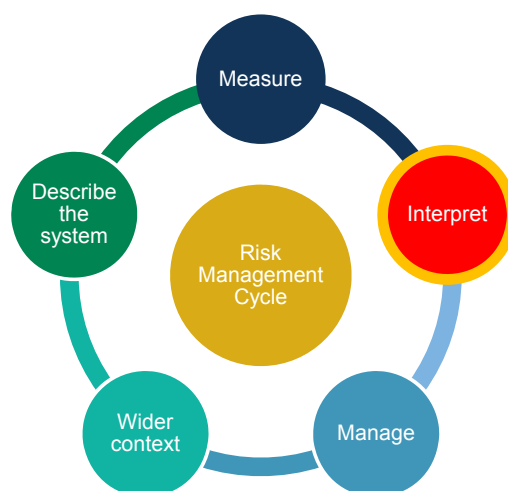
“The how-to bit” - Aggregation

- Borrowed from our Operational Risk modelling
- Bayesian networks
 - Map together interactions
 - Better reflect uncertainty
 - Provide overall exposure figures and granular attribution



Institute
and Faculty
of Actuaries

Stepping through...



Institute
and Faculty
of Actuaries

“The how-to bit” – The “use test”

- Executive sponsors
- Run out of Risk function
- Governance in line with risk calibration
 - Expert judgement panels
 - Robust challenge from wide body of stakeholders
 - External expert input and specialist review



Institute
and Faculty
of Actuaries

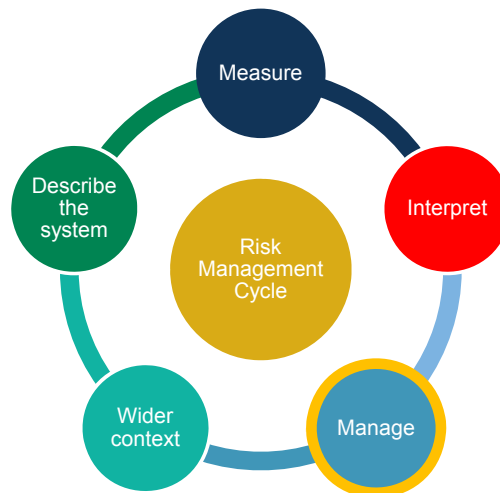
“The how-to bit” – Open issues

- Confusing precision with accuracy
- IEA derived scenarios
- Analysis of sovereign exposure
- Regulatory intervention
- Carbon price rises
 - What/when/how?
- Integrating more deeply into SAA
 - Requires climate-change aware economic models



Institute
and Faculty
of Actuaries

Stepping through...



Institute
and Faculty
of Actuaries

Responding to the call

Designing Aviva's climate change strategy

- **Problem/need**
 - “What on earth do we do about our exposure to climate change?”
- **Process**
 - Worked with climate scientists, investors, underwriters to develop a climate change strategy that positions to the business to respond to climate change
- **Solution**
 - Aviva's Strategic Response to Climate Change (2015)



Institute
and Faculty
of Actuaries

Aviva's climate change strategy



Integrate climate risk in investment (and underwriting) considerations



Invest in lower carbon infrastructure



Support strong policy action on climate change



Active stewardship on climate risk – actively engaging with companies



Divest, after engagement, where necessary

A

39

Bring strategy to life

Launching solutions to help with capital allocation

• Problem/need

- Following their Article 173 (climate change) disclosure Aviva France understood better their exposure to climate change the demands from their customers for products that address it. They asked Aviva Investors for a fund to bring this to life.

• Process

- Close collaboration to develop a number of ESG solutions that meets investment needs combined with meeting low carbon outcomes

• Solution

- Delivered a number of solutions that allows Aviva to improve its overall carbon footprint



Institute
and Faculty
of Actuaries



18/11/2019

41



18/11/2019

42

Aviva's exposure to climate change across our business

	Impacted By	Impacts On
Insurer	General insurance – increasing weather claims Life insurance & pensions	Underwrite negative activities (e.g. coal) Promote positive (e.g. driving)
Asset Owner	Value of assets in future scenarios Liabilities	Emissions from portfolio Green vs brown investment
Asset Manager	CC on financial returns	Active stewardship Stock selection/valuation

Aviva: P18 November 2019

43

Active ownership - Voting

Corporate Governance Policy

- Disclosure
2001: withhold support for a company's if their disclosure on ESG issues is absent or non-existent
2019: withhold support for AR&A if not sufficient climate disclosure (TCFD)
- Shareholder resolutions

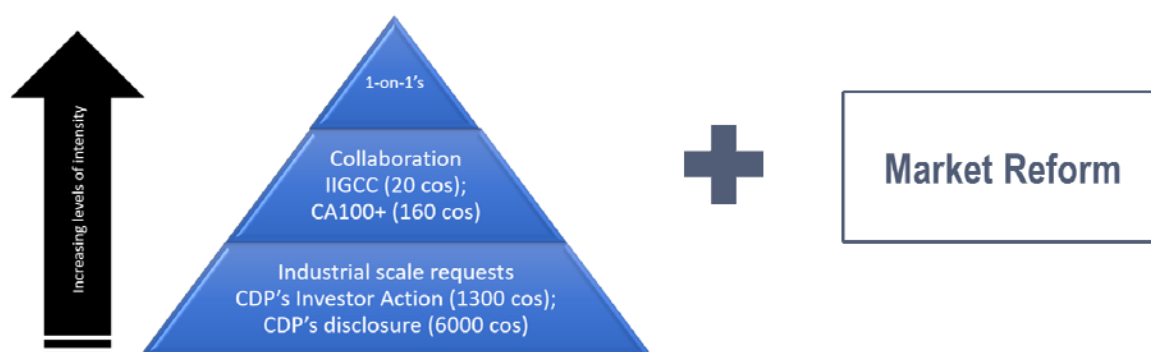
	Shareholder Resolutions (SHR)							ESG disclosure	
	Climate Change strategy	Climate goals	Deforestation	Methane	Renewable Energy	Water	Total SHR	# companies	# companies CDP specific
2015	28	15	3	5	5	0	58	181	6
2016	35	11	1	5	12	1	65	176	88
2017	33	12	3	4	13	0	65	184	104
2018	8	11	2	6	14	2	43	183	111
Total	104	49	9	20	44	3	229		

Institute
and Faculty
of Actuaries

Aviva: P18 November 2019

44

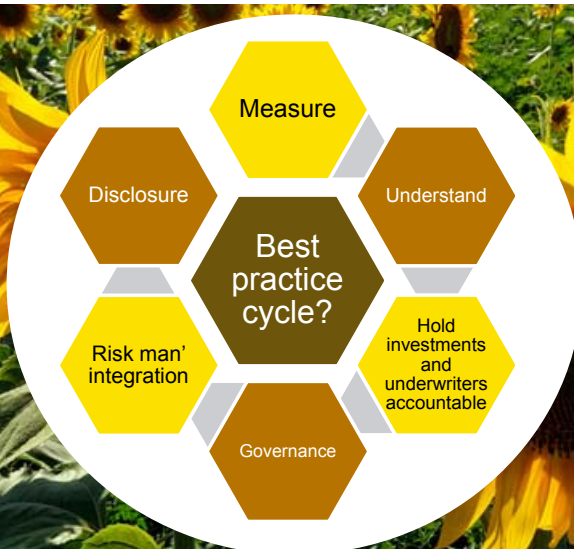
Active Ownership - Engagement



Institute
and Faculty
of Actuaries

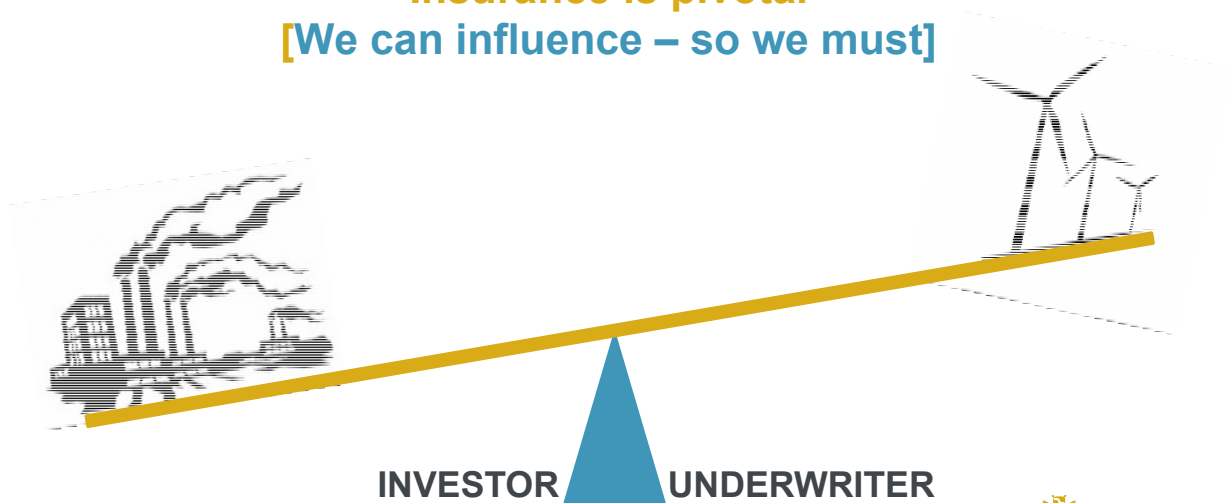


A possible shape for best practice?



18 November 2019

Insurance is pivotal
[We can influence – so we must]



Institute
and Faculty
of Actuaries

Key messages

1) **Why?** It's systemic and the PRA have high expectations

- The PRA are paying attention – read SS 3/19
- Measurement is the first step to understanding
- It is unambiguously part of the prudent person principle.

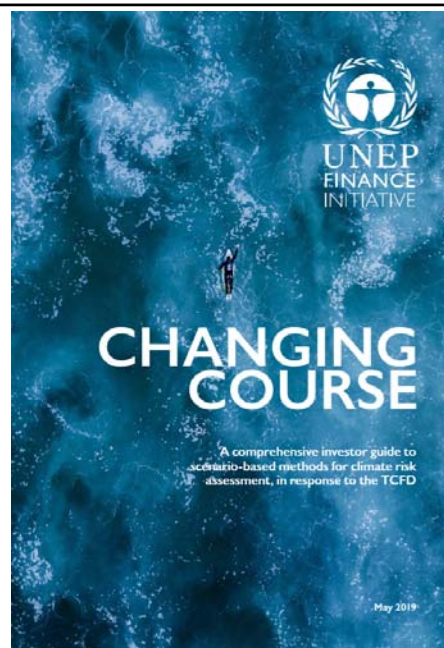
2) **Why?** The greatest cost to shareholders and customers is from inaction

3) **How?** First Measure. Then Do.

Plenty can be done by taking an active approach to asset ownership

Some further information

- <https://www.unepfi.org/investment/tcfd/>



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