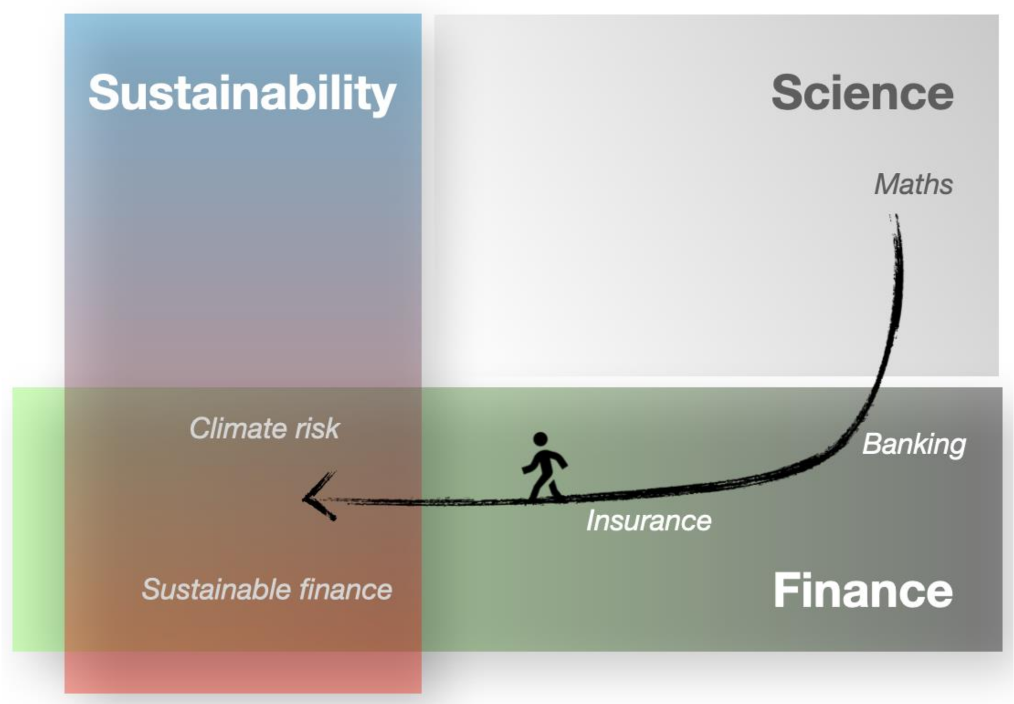
115. General Assembly
Swiss Association of Actuaries
06 September 2024


Urania Sternwarte, Zürich © Gianni Krattli

Climate & Sustainability Risk Management
The Need for New Approaches

Jérôme Crugnola-Humbert

My Own Journey into Sustainability



- 2001: Financial engineer, banking
- 2004: Insurance & actuarial consulting
- 2017: Started working on sustainability
- 2020: Expert on sustainable finance policy, EIOPA
- 2021: Founder, sustainability working group, SAV

  Director, sustainability services, Deloitte
- Now: Independent consultant

  Chairperson, sustainability & climate risk, AAE

Update of Actuarial Guidelines

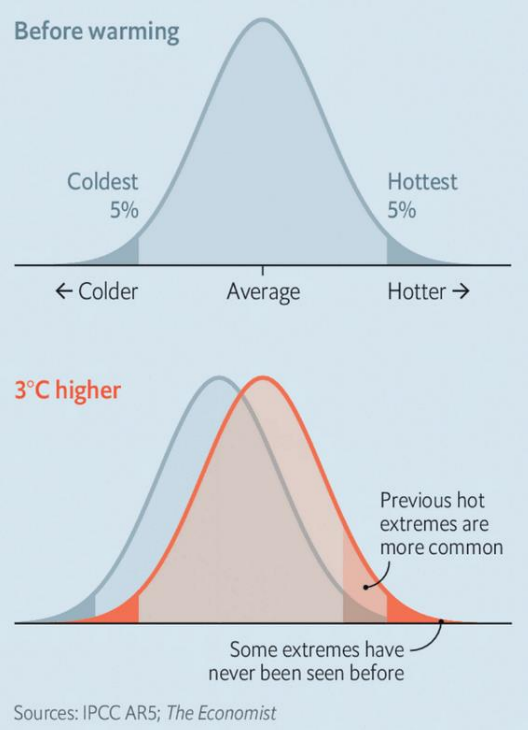
- Six Swiss guidelines were updated this year to mention climate and emerging risks, touching on actuarial practice, reserves and actuarial reports
- This was the result of a process initiated by the sustainability working group, and inspired by similar work done at other actuarial associations (e.g. UK, Australia)
- Example: Actuarial Practice Guideline

3. Actuarial practice

3.1 Members deliver actuarial services only when in possession of the necessary qualifications and experience, unless they are carrying out a mandate in collaboration with or under the supervision of an expert who possesses the necessary knowledge or experience. In addition to knowledge of a purely actuarial nature, the necessary expertise includes knowledge of the pertinent laws, guidelines and the code of conduct. Members should also consider whether new and emerging risks (including climate change, sustainability, and other technological, economic, political, and legislative changes) are relevant to the actuarial services delivered.
In accordance with the actuarial reserves for statutory accounting or reporting for a supervisory authority, members must be conversant with and take due account of the relevant accounting principles, national statutory requirements and valid

Why Are Sustainability Risks Different?

- **Emerging** risks (i.e. not stationary)
- **Long-term** nature (over decades)
- **Systemic** nature (hard to avoid or diversify)
- Not just more variability but also a **change in trends**



The Streetlight Effect

- Also known as the **Drunkard's Search Principle**
- Searching for answers where it's easier to look, rather than in the right place
- Here: trying to fit climate and emerging risks in existing models and frameworks, rather than develop new approaches better suited their specific nature

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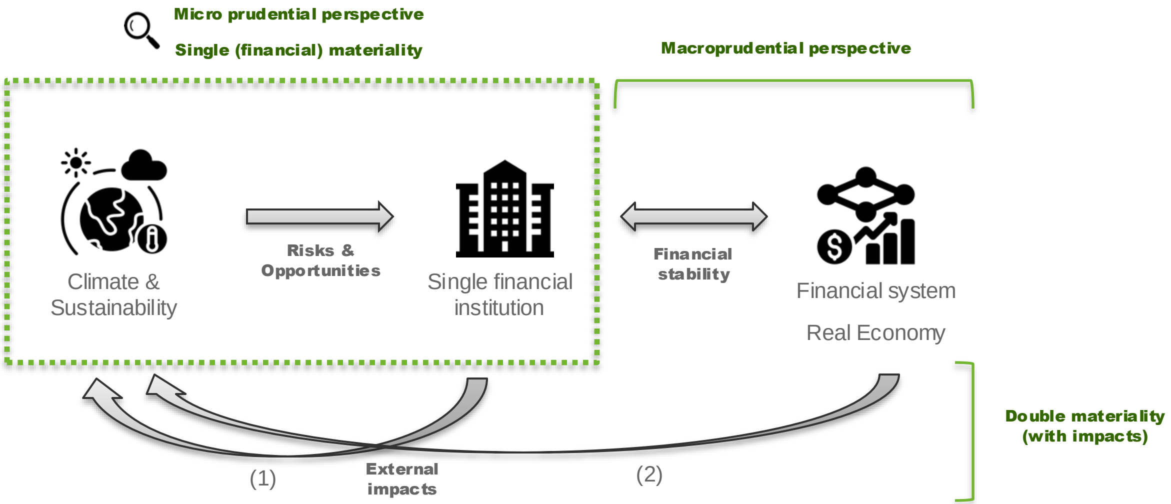
The Quantitative Fallacy

- Make decisions based only on whatever can be easily measured
- What cannot be measured easily is not important or does not exist
- Also known as the **McNamara Fallacy** after the US Secretary of Defense during the Vietnam War

1965 © Marion S. Trikosko

Risks, Impacts and Double Materiality



- If they are unmanaged, **external impacts end up as risks**
- Example: providing financing or insurance for thermal coal power generation can create short-term reputation risks (1) and fuels longer-term physical risks (2)

Double Materiality in the Law

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Regulation and disclosures

- Code of Obligations
- Ordinance on Climate Disclosures

Financial supervision and prudential aspects

- FINMA Circular on Nature-Related Financial Risks (*consultation – explanatory report*)

Corporate Sustainability Reporting Directive (CSRD)

Art. 964*b*

B. Purpose and content of the report

[1] The report on non-financial matters shall cover environmental matters, in particular the CO2 goals, social issues, employee-related issues, respect for human rights and combating corruption. The report shall contain the information required to understand the business performance, the business result, the state of the undertaking and the effects of its activity on these non-financial matters.

Art. 1 Subject matter
(Art. 964*a*–964*c* of the CO)

[1] This Ordinance governs disclosures on climate issues by companies in accordance with Article 964*a* of the CO as part of environmental matters within the framework of non-financial matters in accordance with Article 964*b* of the CO.

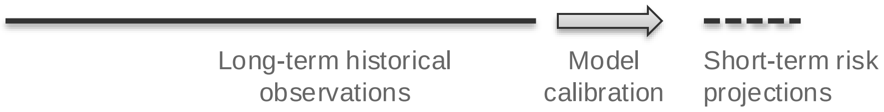
[2] Climate issues cover both the effects of climate change on companies and the effects of companies' activities on climate change.

Das Rundschreiben befasst sich mit den naturbezogenen Finanzrisiken, die sich für das Institut ergeben. Die finanzielle Wesentlichkeit aus Sicht des Finanzinstituts ist massgebend. Dabei gilt es allerdings zu berücksichtigen, dass die Wirkung des Instituts auf die Natur (bspw. durch Finanzierungen und Investitionen) die Risiken beeinflusst, welche das Institut zu bewirtschaften hat. Die Beurteilung der finanziellen Risiken erfordert somit auch eine Berücksichtigung der Einflüsse des Instituts auf die Natur. Im Kontext dieses Rundschreibens kommt das Konzept der „doppelten Wesentlichkeit“ also

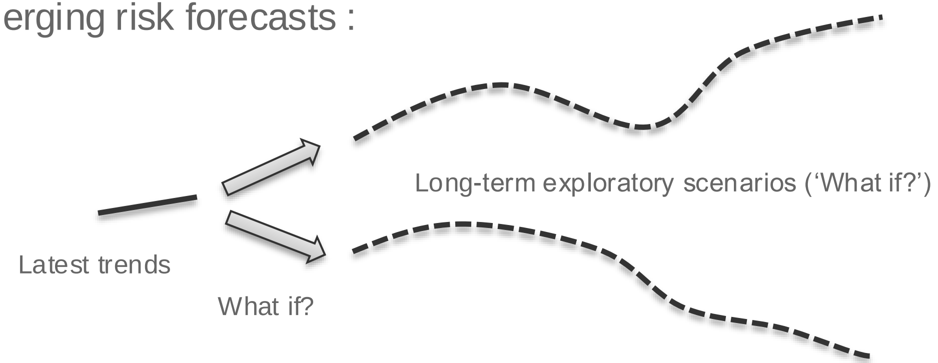
(29) Article 19a(1) and Article 29a(1) of Directive 2013/34/EU require reporting not only on information to the extent necessary for an understanding of the undertaking's development, performance and position, but also on information necessary for an understanding of the impact of the undertaking's activities on environmental, social and employee matters, respect for human rights, anti-corruption and bribery matters. Those Articles therefore require undertakings to report both on the impacts of the activities of the undertaking on people and the environment, and on how sustainability matters affect the undertaking. That is referred to as the double materiality perspective, in which the risks to the undertaking and the impacts of the undertaking each represent one materiality perspective. The fitness check on corporate reporting shows that those two perspectives are often not well

Statistical vs. Forward-Looking View

- Traditional statistical approach for stationary risk models:



- Forward-looking approach for emerging risk forecasts :



Climate Scenarios Analysis

- Climate scenarios are not just required in the **ORSA** for prudential purposes (EIOPA, upcoming FINMA Circular)
- They are also required in **sustainability disclosures** (EU CSRD, IFRS/ISSB, Climate Ordinance and TCFD in Switzerland)

TCFD Framework

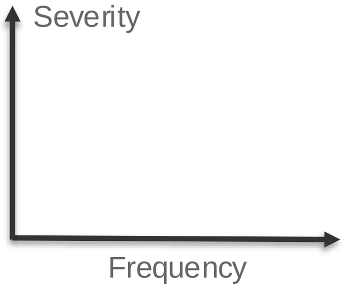
Governance	Strategy	Risk Management	Metrics and Targets
Disclose the company's governance around climate-related risks and opportunities.	Disclose the actual and potential impacts of climate-related risks and opportunities on the company's businesses, strategy, and financial planning where such information is material.	Disclose how the company identifies, assesses, and manages climate-related risks.	Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.
a) Describe the board's oversight of climate-related risks and opportunities.	a) Describe the climate-related risks and opportunities the company has identified over the short, medium, and long term.	a) Describe the company's processes for identifying and assessing climate-related risks.	a) Disclose the metrics used by the company to assess climate-related risks and opportunities in line with its strategy and risk management process.
b) Describe management's role in assessing and managing climate-related risks and opportunities.	b) Describe the impact of climate-related risks and opportunities on the company's businesses, strategy, and financial planning.	b) Describe the company's processes for managing climate-related risks.	b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.
	c) Describe the resilience of the company's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the company's overall risk management.	c) Describe the targets used by the company to manage climate-related risks and opportunities and performance against targets.

Climate scenarios should:

- Be **long-term**
- Cut **across all risk categories** (market, credit, underwriting, operational, liquidity …)
- Include assumptions about the **future strategy**

Time Horizon and Emerging Risks (1)

Traditional **risk matrix**:



- Implicitly **short-term / myopic**
- 1-year risk horizon for solvency capital requirements
- 1-year contractual term for most non-life insurance
- Short-term risk mitigation is often rudimentary (e.g. reprice/exclude)
- Speaking of **return periods** doesn't make sense for emerging risks

Houston is experiencing its third '500 year' flood in 3 years. How is that possible?

Analysis by Christopher Ingraham
Reporter
August 29, 2017 at 7:30 a.m. EDT

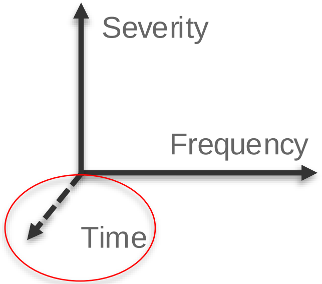
See Houston's historic flooding from the air
3:33

This drone video taken Aug. 27 shows the historic flooding in Houston caused by Hurricane Harvey. (Video: ahmed.gul/Instagram)

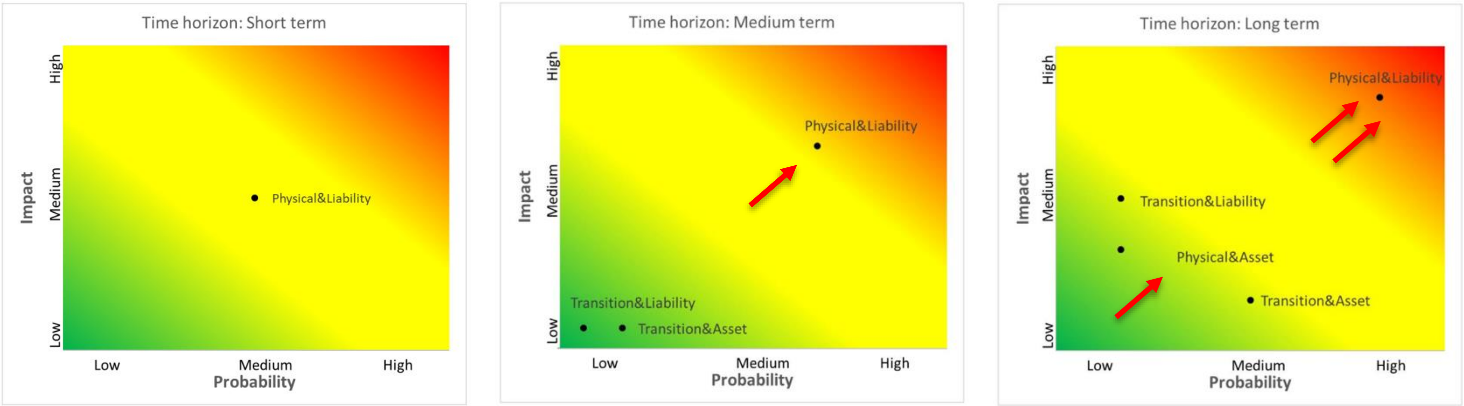
2017 © Washington Post

Time Horizon and Emerging Risks (2)

Add 3rd dimension to **risk matrix**:



- Long-term risk planning allows better risk mitigation techniques over several years
- e.g. prevention measures, sector-wide initiatives etc.



[EIOPA Application guidance on running climate change materiality assessment and using climate change scenarios in the ORSA (europa.eu)]

Adaptation and Gross vs. Net Risk

European heat wave	July-August 2003	June-July 2019
Max. temp. for Paris, France	39.5 °C	42.6 °C
Comparison 2003 vs. 2019	Unexpected	More extreme
Estimated death toll (Europe)	> 70’000	≈ 4’000

Adaptation

- Ignoring future adaptation overestimates the actual risk
- Assuming full adaptation underestimates the actual risk and makes it **disappear from the risk radar**
- Adaptation has **limits**, **costs** and potential **secondary effects**
- Maladaptation, e.g. massive use of air conditioning straining the power grid and fuelling climate change

Working with all Stakeholders

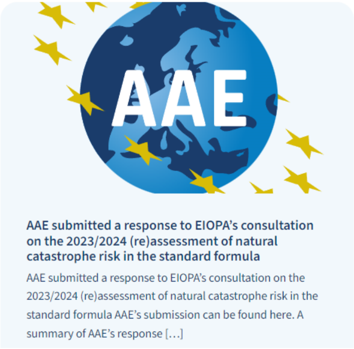
Schweizerische Aktuarvereinigung
Association Suisse des Actuaires
Associazione Svizzera degli Attuari

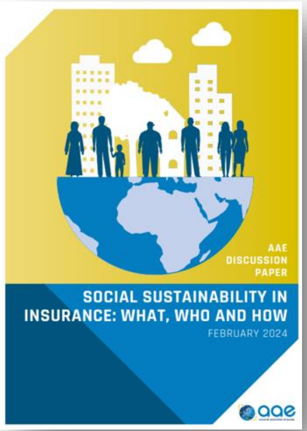
Internal	
Board	
Executive directors	
Investment managers	Communications Marketing
Product managers Salesforce	Risk management Actuarial
Compliance & Legal Internal audit	Own operations (IT, HR etc.)

External	
Investors	Regulators Supervisors
Competitors Sector associations	Clients
Suppliers	External audit
Society NGOs	Nature Ecosystem services

At the European Level

- Responding to relevant consultations from EIOPA and other European institutions
- Thought leadership and publications
- Working with the European Commission’s Climate Resilience Dialogue on climate adaptation





At the International Level

International Actuarial Association
Association Actuarielle Internationale

- Thought leadership and publications
- Testimony before the US Senate
- Participation to UN Climate Change Conferences

Thank you for your attention

- This presentation is indebted to colleagues at Deloitte, WWF, the EU Commission, actuarial associations, and many organisations I worked with over the years
- All the opinions voiced in this presentation are mine only
- Any mistake is also mine, and should not cast doubt on climate and sustainability risk and the key role of the financial system
- Any unattributed copyrighted material in this non-commercial presentation is unintentional and falls under Fair Use
- I am happy to take any follow-up question or remark, feel free to contact me on LinkedIn