Swiss Re Institute

Measuring and pricing climate risks

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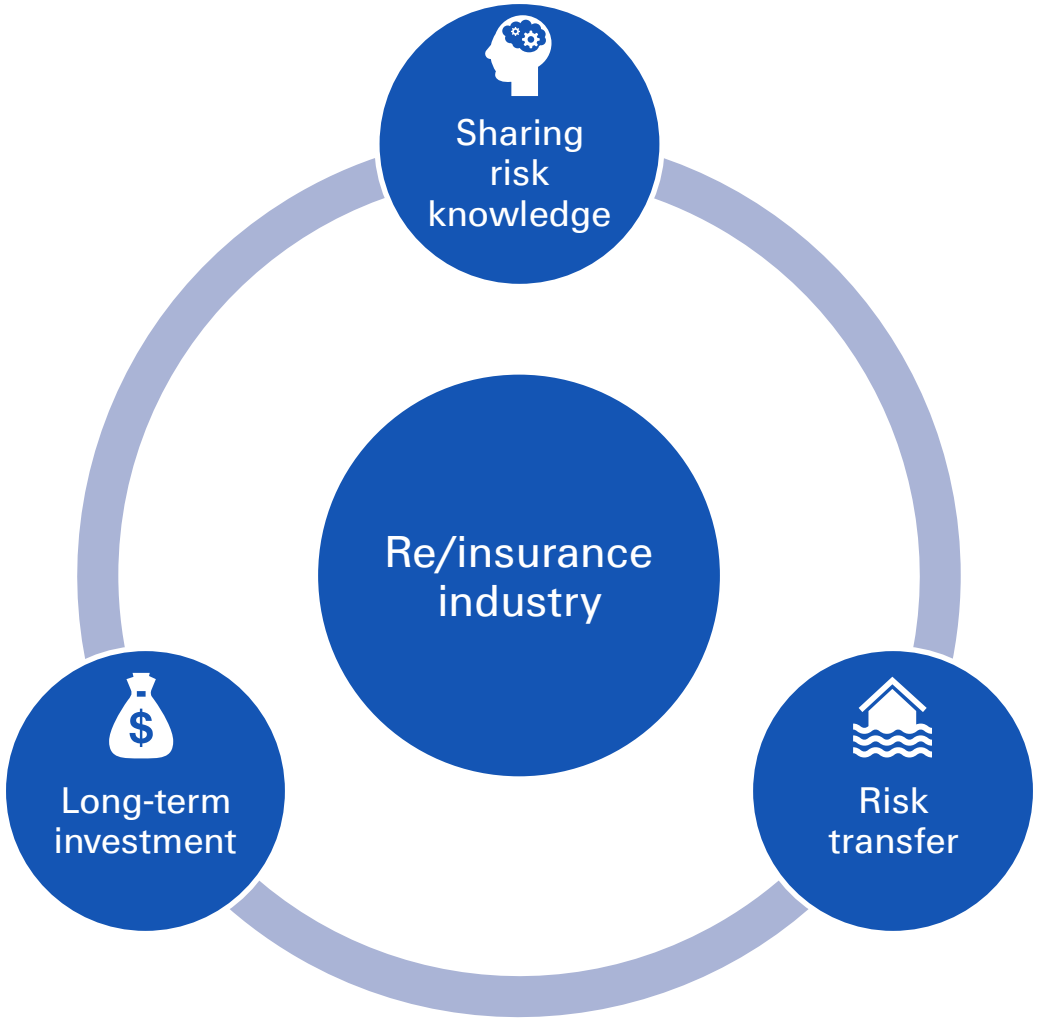
On climate risk and financial stability: Remember these 3 key figures

75% | $100tn + | -10%

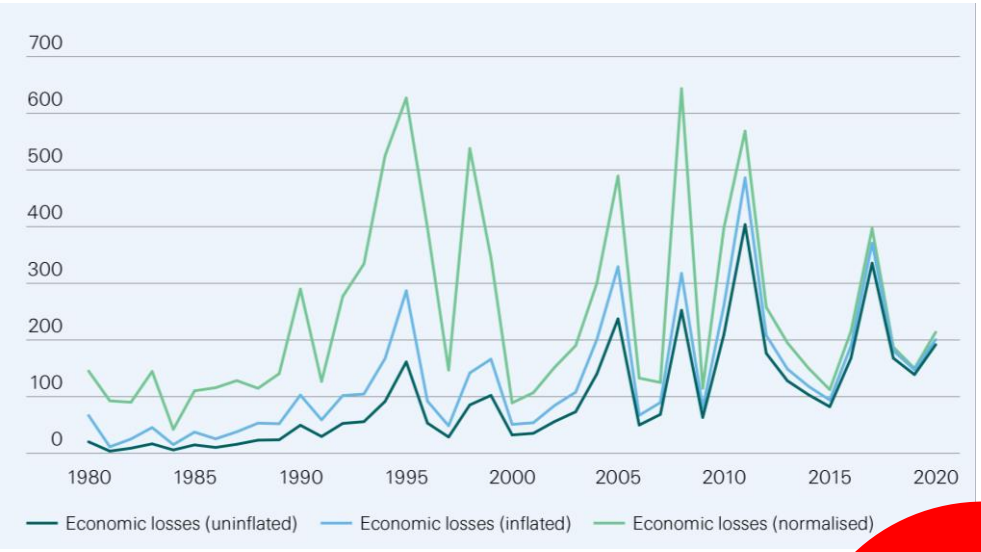
The re/insurance industry is central to the transition to a net-zero economy



Source: Swiss Re Institute

Physical risk: Economic losses from natural catastrophes are on the rise and large protection gaps remain

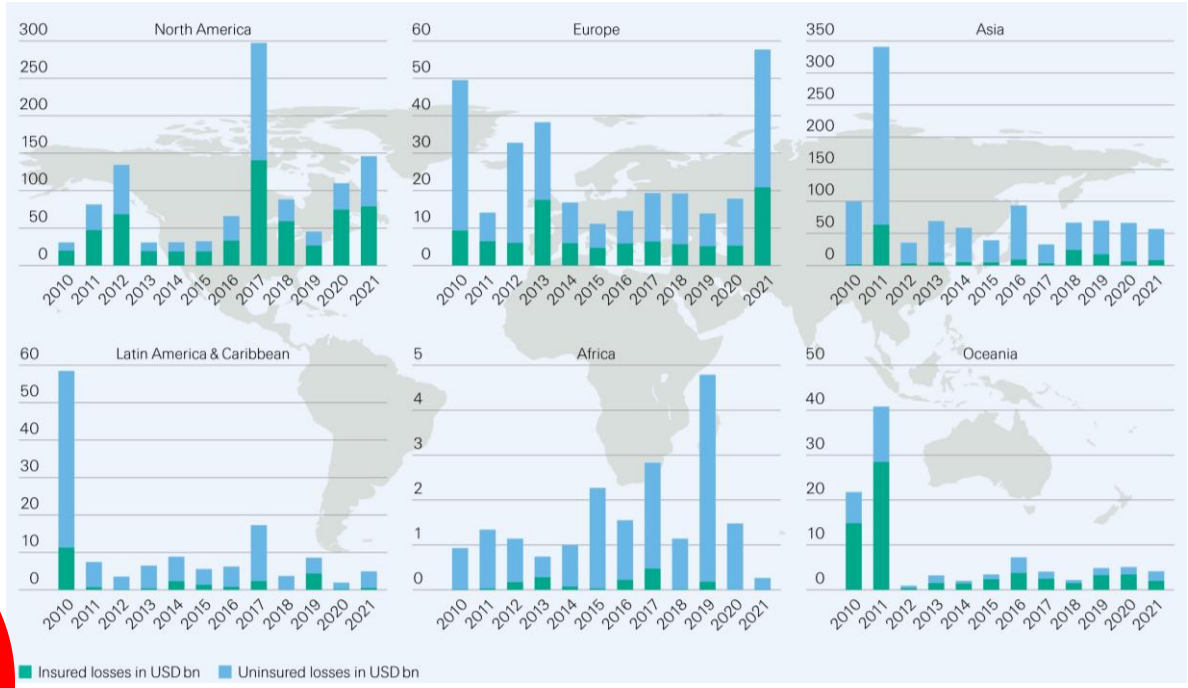
Economic losses from natural catastrophes, USD billion



Note: normalised by GDP (country real GDP+US inflation); loss-data quality pre-1990 is poor.
Source: Swiss Re Institute

75%
uprotected globally

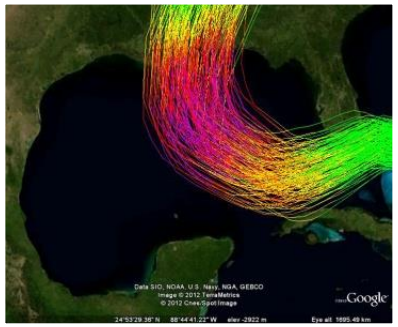
Natural catastrophe protection gap by region 2010-2021, USD billion at 2021 prices

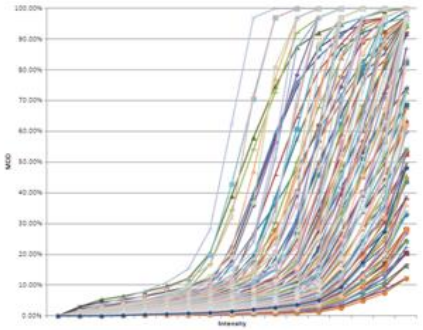


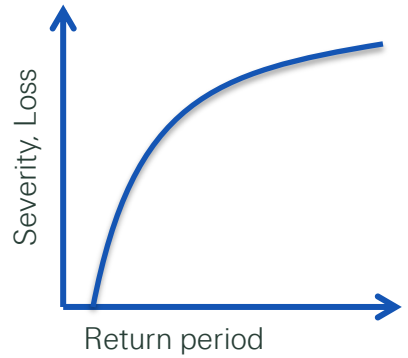
Source: Swiss Re Institute

Measuring and pricing risk: We continuously update our risk views to keep pace with the ever-changing world

Hazard	Vulnerability	Exposure	Financial model







Current R&D areas

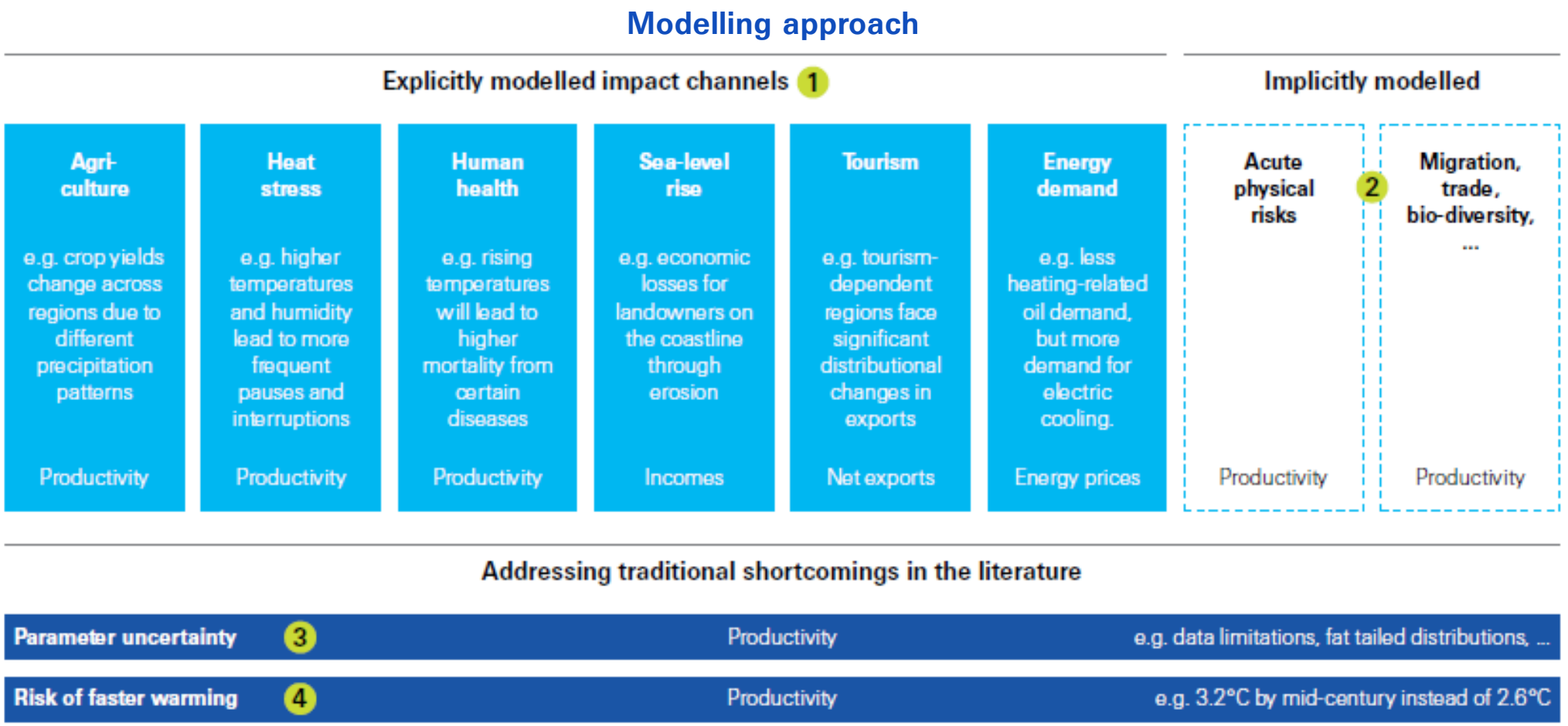
- Secondary perils, ie flood, wildfire, severe convective storms[1]
- Natural variability
- Current and future climate change

- Sealing of surfaces
- Flood protection measures
- Building standards

- Population and value growth
- Urbanisation
- Overbuilding in flood prone areas

- Wording and condition changes
- Social inflation
- Benchmarking and debiasing of historical events

Research: Our novel scenario climate change economics approach takes traditional shortcomings into account



Source: Swiss Re Institute

Economic impact of climate change: Regional disparities at play with “no winner”

- Focusing on the "mean" gives a false sense of security. The tails are what matters.

	Temperature rise scenario, by mid-century			
	Well-below 2°C increase	2.0°C increase	2.6°C increase	3.2°C increase
	Paris target	*The likely range of global temperature gains*		*Severe case*
Simulating for economic loss impacts from rising temperatures in % GDP, relative to a world without climate change (0°C)				
World	–4.2%	–11.0%	–13.9%	–18.1%
OECD	–3.1%	–7.6%	–8.1%	–10.6%
North America	–3.1%	–6.9%	–7.4%	–9.5%
South America	–4.1%	–10.8%	–13.0%	–17.0%
Europe	–2.8%	–7.7%	–8.0%	–10.5%
Middle East & Africa	–4.7%	–14.0%	–21.5%	–27.6%
Asia	–5.5%	–14.9%	–20.4%	–26.5%
Advanced Asia	–3.3%	–9.5%	–11.7%	–15.4%
ASEAN	–4.2%	–17.0%	–29.0%	–37.4%
Oceania	–4.3%	–11.2%	–12.3%	–16.3%

Note: Temperature increases are from pre-industrial times to mid-century, and relate to increasing emissions and/or increasing climate sensitivity (reaction of temperatures to emissions) from left to right. According to IPCC’s definition on Representative Concentration Pathway (RCP) scenarios, the Paris Agreement target corresponds to “a very stringent” RCP 2.6 pathway. The baseline scenario of 2°C to 2.6°C degree warming represents the average and upper-bound of temperature rise under RCP 4.5. Lastly, the 3.2°C increase denotes a severe scenario under RCP 8.5.
Source: Swiss Re Institute

The way forward...

BW III

Public and private sectors need to hasten climate policy action and collaborate

Meaningful carbon pricing
to support net zero transition and promote transparent pricing of climate-related financial risks

Fiscal incentives and lower investment barriers
to encourage spending in carbon capture and reduction, and in climate resilient development

Transparency and standardization around taxonomy, data, standards and metrics
as a key for carbon price discovery and comparability of corporate reporting to avoid "greenwashing"

Rating agencies should more explicitly take climate change risks into account
to shape best practices and avoid "greenwashing"

Regular transition roadmap disclosures
by companies on how they intend to reach the Paris Agreement and 2050 net-zero emission targets

Sharing of risk knowledge and expertise, and establishment of standardized risk sharing mechanisms
through the private and public sector

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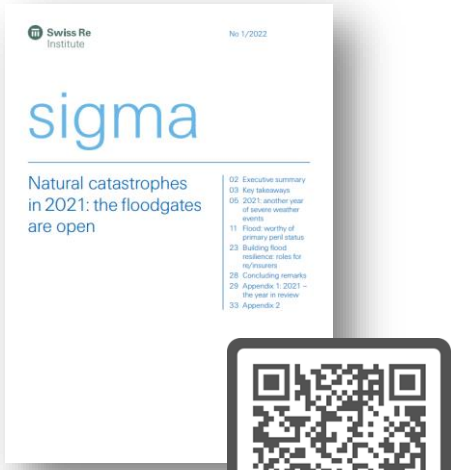
Sigma

- Market information for managers and specialist in the (re)insurance industry



Expertise Publications

- Expert analysis of specific risk topics in regional markets and the global (re)insurance industry

Economic Insights

- Key findings on macro developments and market events, and their implications for the (re)insurance industry

Economic Outlook

- Monthly newsletters on global economic and financial market risk landscape.

Swiss Re Institute

Thank you!

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Appendix

SRI Climate Economics Index: Vast regional differences in exposure and mitigation readiness

Swiss Re Institute Climate Economics Index ranking

Rank	Country	Physical risk			Current adaptive Capacity	Total Index
		GDP impact	Extreme weather risk			
			Dry	Wet		
1	Finland	3	8	32	8	11.3
2	Switzerland	4	12	37	2	11.6
3	Austria	7	15	41	6	15.1
4	Portugal	9	21	30	10	15.9
5	Canada	12	18	20	16	16.0
			.....			
44	Thailand	45	43	11	39	36.0
45	India	42	37	13	46	36.4
46	Philippines	46	48	5	43	37.3
47	Malaysia	48	47	23	33	38.3
48	Indonesia	44	45	19	44	39.2

Note: All measures are constructed on the basis of IPCC's Representative Concentration Pathway (RCP) 8.5 scenario. The ranking of GDP impact refers to the percentage loss of GDP by mid-century under the average 2.6°C warming scenario with x10 stress-tested factors, which was used to account for the parameter uncertainty in climate impact model.
Source: Verisk Maplecroft, Swiss Re Institute

Transition risk (I/II): Transitioning out of underwriting the most severe risks, and supporting opportunities

Thermal Coal

- Swiss Re does not provide re/insurance to businesses with more than **30% thermal coal exposure**.[1] In 2020, we introduced a **thermal coal exposure threshold**, which will be lowered gradually towards a complete **phase-out of thermal coal exposure in OECD countries by 2030** and in the **rest of the world by 2040**

Oil and Gas

- In 2021, **5% most carbon-intensive oil and gas** companies phased out,. This threshold will increase to **10% in July 2023**. We recently strengthened our Oil and Gas policy, no longer re/insuring or directly investing in **new oil and gas fields** and projects located in the **Arctic AMAP region**[2]

Carbon steering

- Swiss Re continues to develop a comprehensive **carbon risk steering mechanism** to measure the carbon footprint and associated risks embedded in our re/insurance business. In 2020 and 2021, we reported the **carbon intensity of our direct insurance portfolio**, using a carbon footprinting methodology developed through the CRO Forum

Opportunities

- We offer a range of re/insurance solutions to manage the risks of different kinds of **renewable energy and infrastructure projects**, in line with our 2030 Sustainability Ambition to advance the energy transition. At the end of 2020, Swiss Re was providing risk cover to more than 5 600 **wind and solar farms**, avoiding over 22 million tonnes in CO2 emissions

[1] Applies to all facultative and direct insurance business
[2] Norwegian production is exempt

Transition risk (II/II): Our responsible investing approach supports the transition towards a low-carbon economy

Milestones

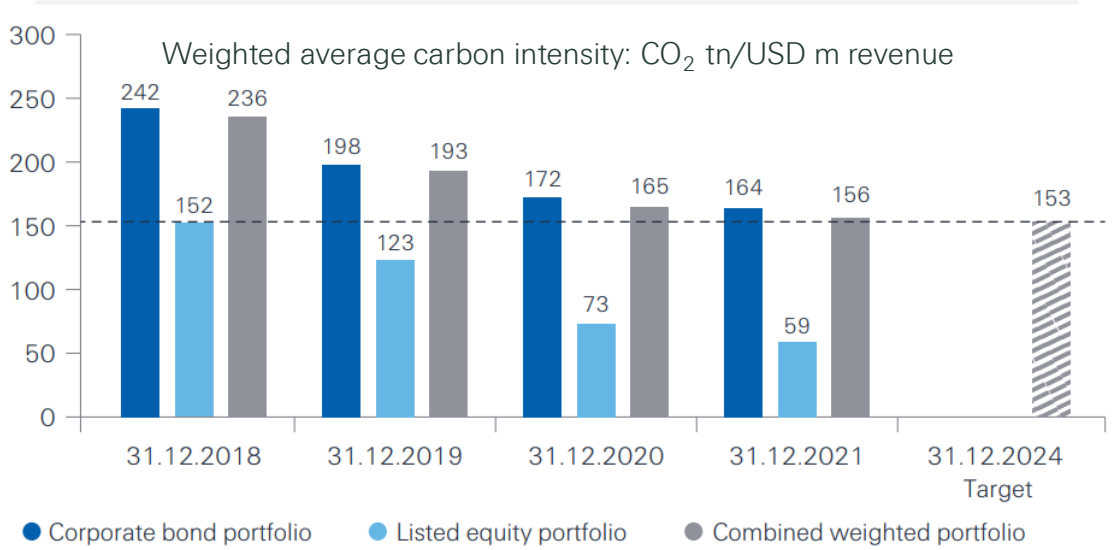
-34%[1]

Reduction of carbon intensity[2] of corporate bond and listed equity portfolio relative to 2018

USD 3.9bn[1]

Green, social and sustainability bonds

Swiss Re's Carbon Footprint



- Portfolio optimisation drives the **continued reduction of carbon intensity** of our corporate credit and listed equities portfolio
- Our green, social and sustainability bonds are reviewed annually against the two principles issued by the ICMA[2] and need to fulfill all four components[3] of the ICMA Principles to be included in our target reporting
- In our 2021 Financial Report (TCFD[4] disclosure), we provide further information on our climate change-related investment risk exposure

[1] As per 31 December 2021
[2] International Capital Market Association with its four core components: Use of proceeds, Process for Project Evaluation and Selection, Management of Proceeds Reporting
[3] Covering Scope 1 and 2
[4] Task force on Climate-related Financial Disclosures

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