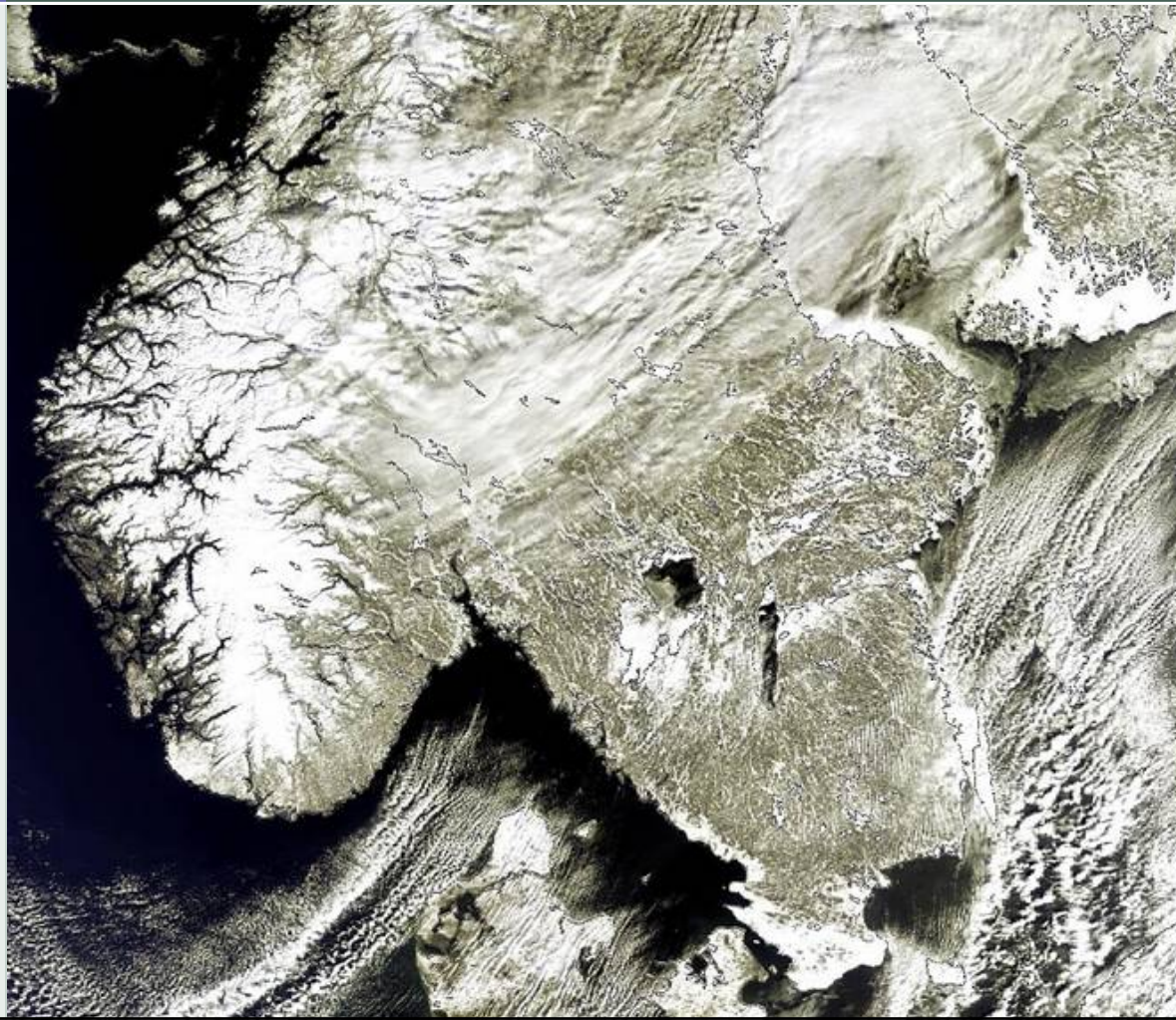


Swiss Re



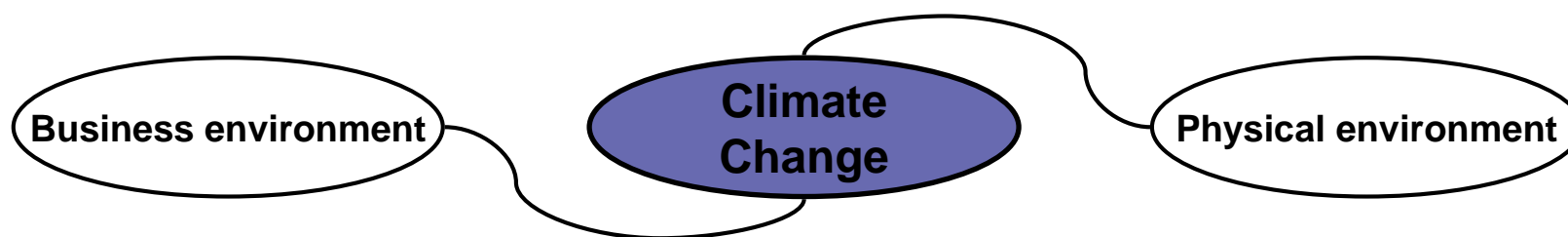
Global Warming A Changing Risk Landscape



Dr. Silvio Tschudi
Manager Cat Perils
Swiss Re Germany
Property & Specialty

Climate Change
Gjensidige
Nov 4th 08

Agenda



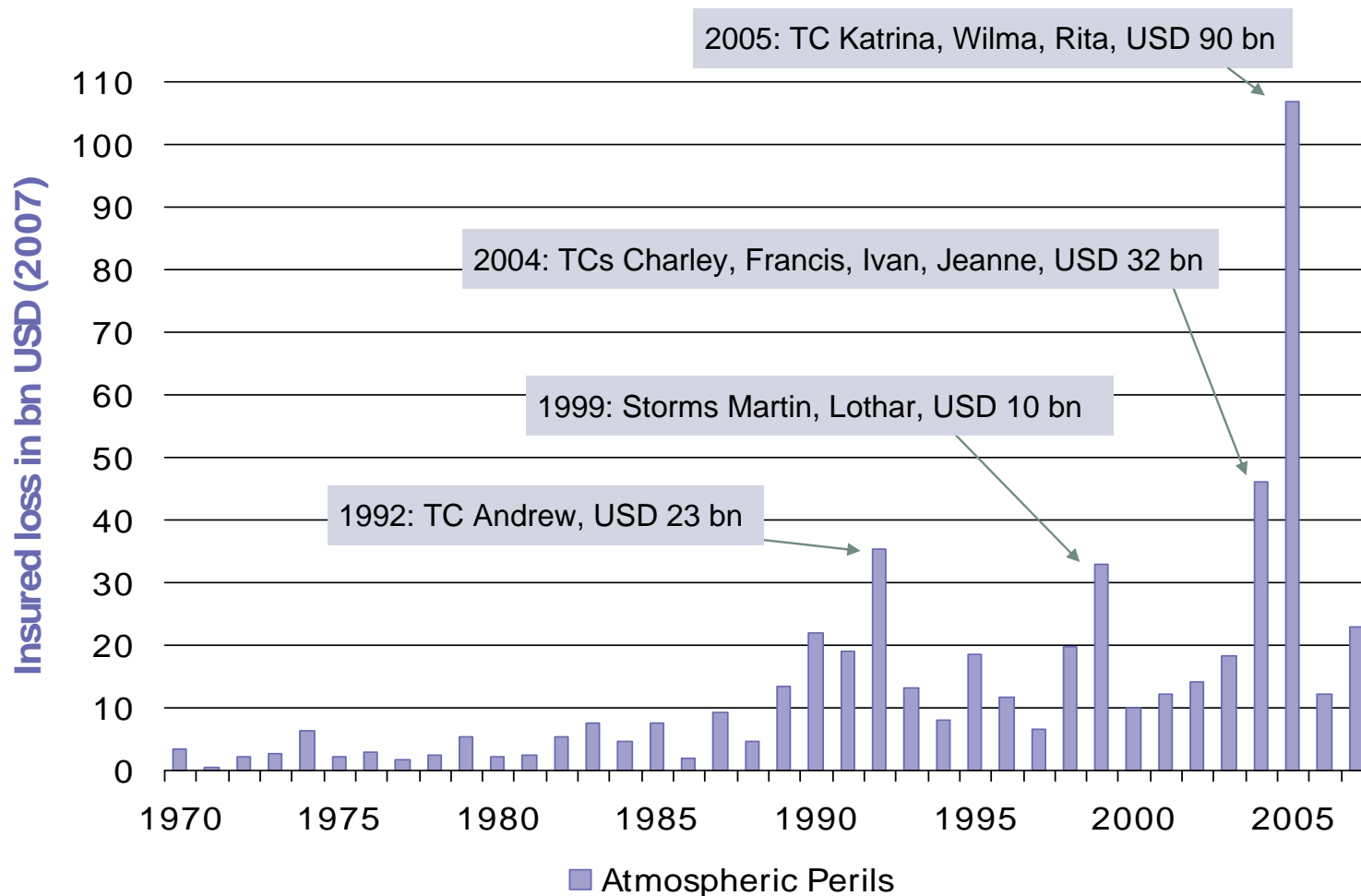


General observations

Upwards trend

- Insurance penetration
- Economic activity
- Population density
- Value concentration
- Vulnerability
- Environment

Dr. Silvio Tschudi
 Manager Cat Perils
 Swiss Re Germany
 Property & Specialty



General observations



Ocean Drive, FL, 1926.



Ocean Drive, FL, 2000.

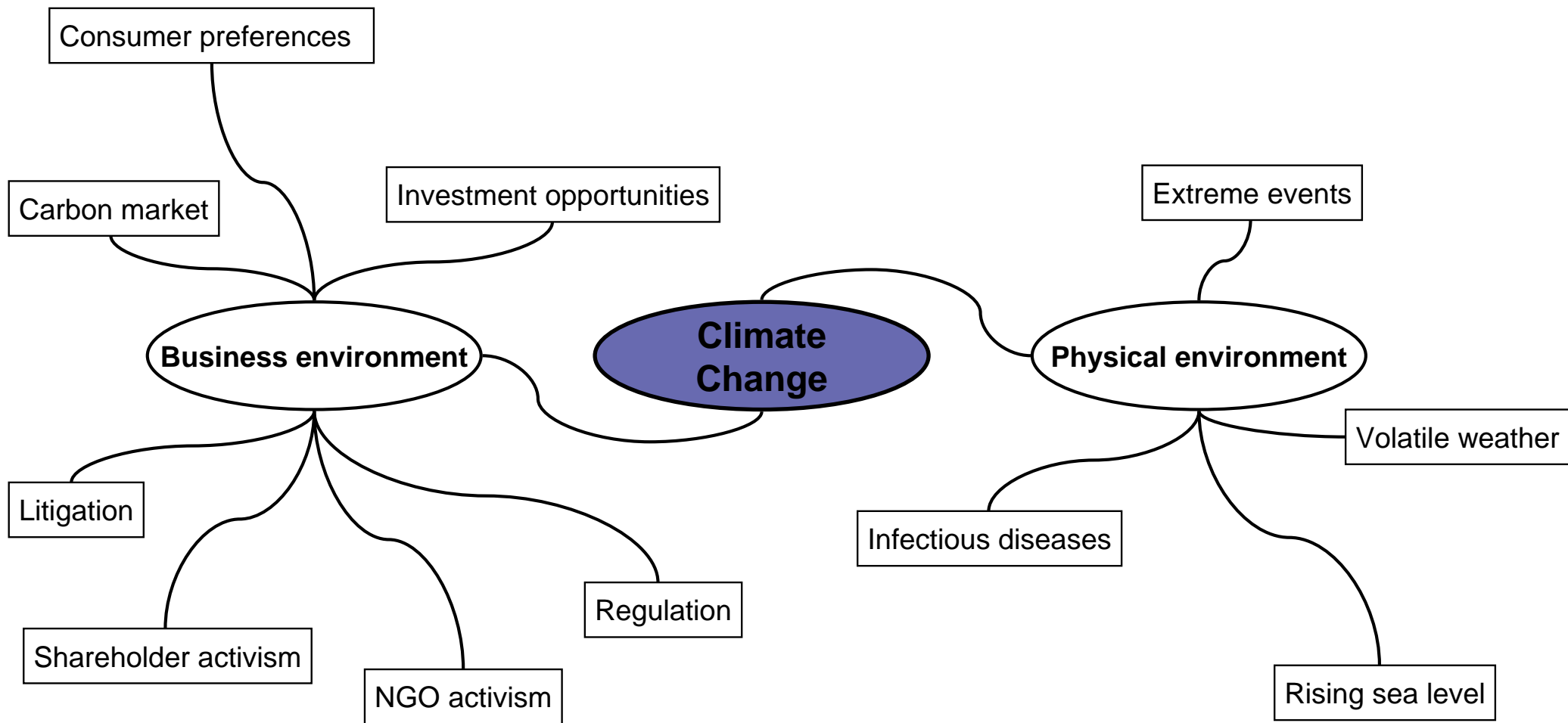


General observations

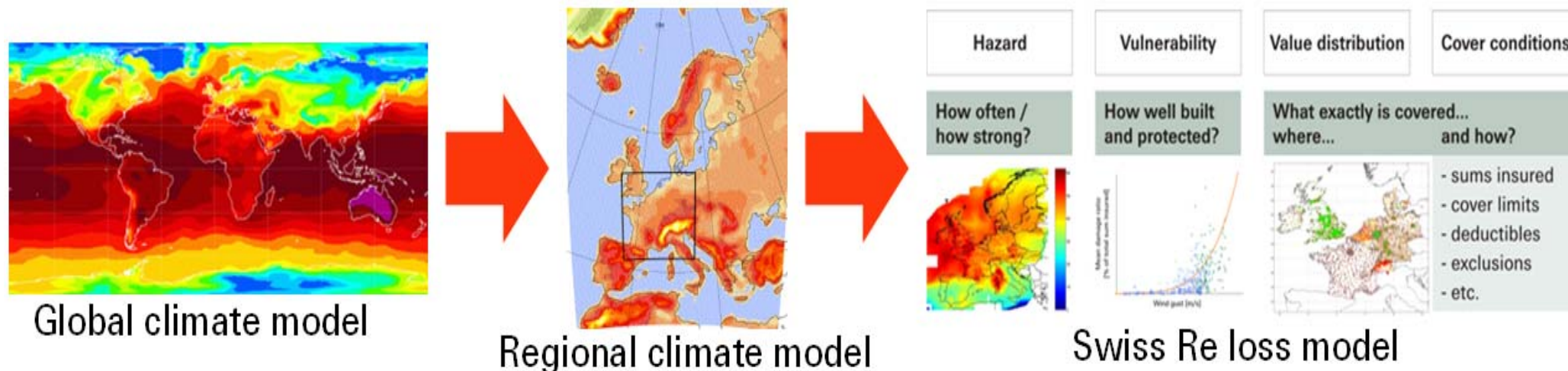
<i>Event</i>	<i>Prop premium</i>	<i>Economic loss</i>	<i>Insured loss</i>
■ 1990 Vivian			2,8b€
■ 1999 Anatol (Winterstorm)			1,3b€
■ 1999 Lothar & Martin			5,6b€
■ 2005 Storm Erwin / Gudrun			1,3b€
■ 2005 Flood Romania	0,14b€ (10%)	1,5b€ (1%)	0,015b€
■ 2005 Flood Norbert			1,5b€
– Share Austria	2,0b€ (5%)	0,4b€ (25%)	0,1b€
– Share Switzerland	2,9b€ (48%)	1,7b€ (82%)	1,4b€
■ 2007 Kyrill			3,6b€
■ 2005 Hurricane Katrina	77b€ (57%)	95,9b€ (46%)	44,1b€



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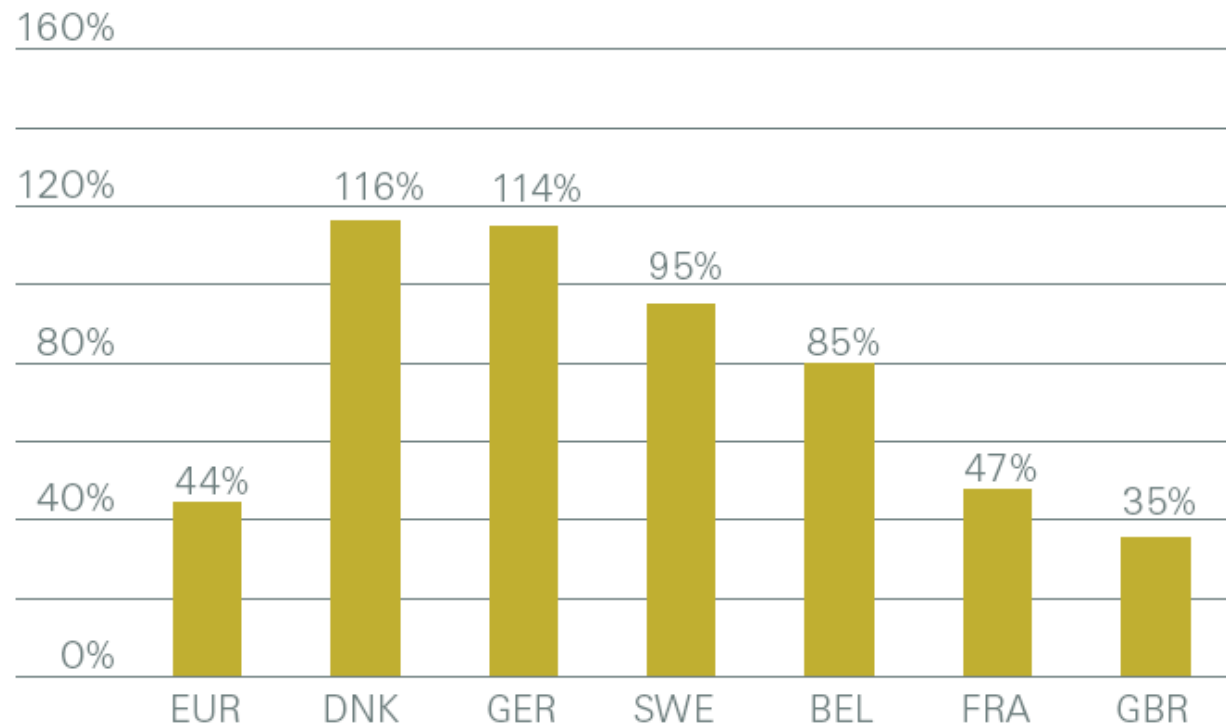
Changes in extreme events (I)



- Global scenario A2
- 3 different regional models (ETH Zurich)
- Coupling to Swiss Re loss model



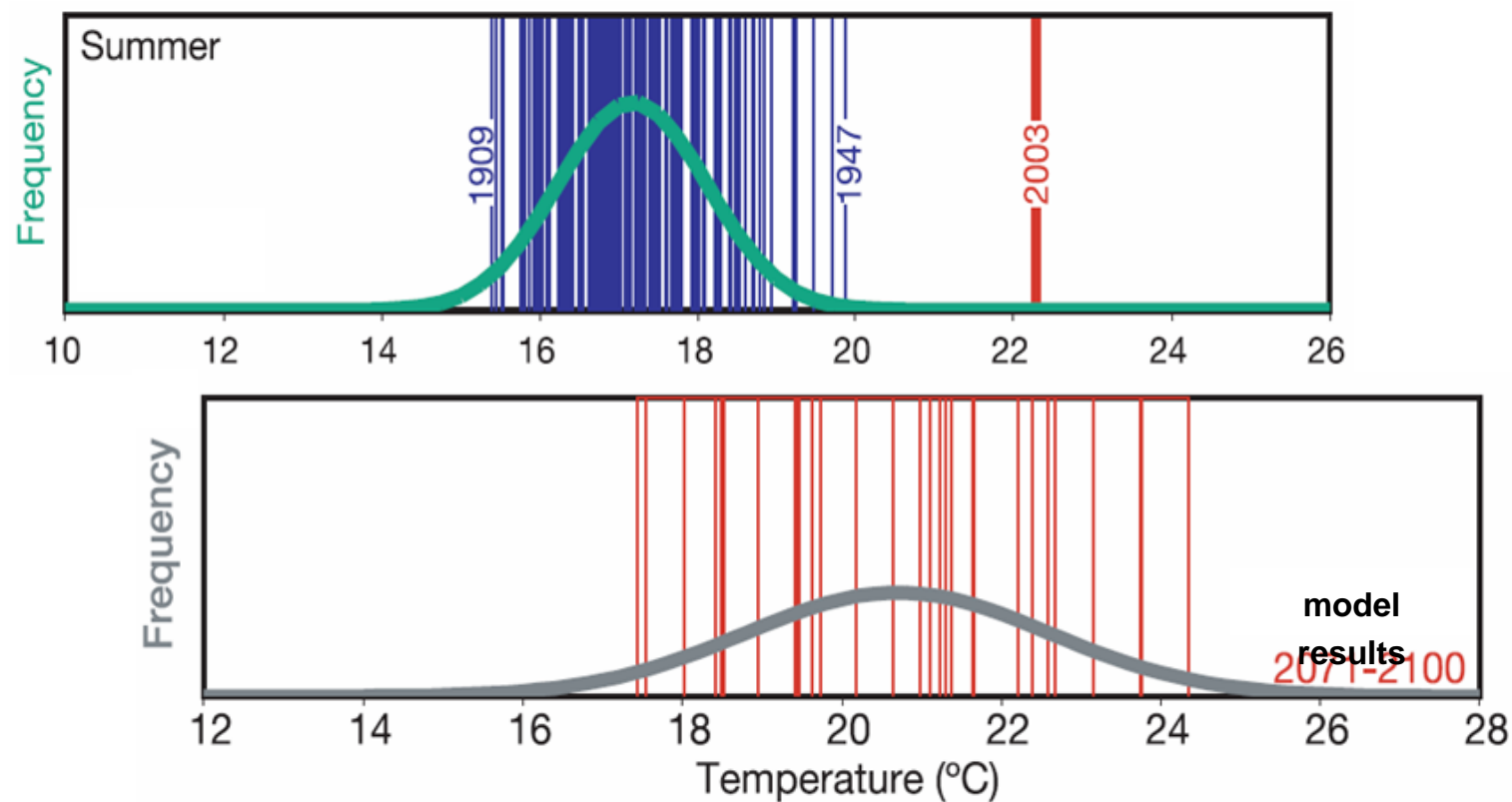
Changes in extreme events (I)



- Regional variation – Scandinavia to double
- “Big ones get bigger”



Changes in extreme events (II)



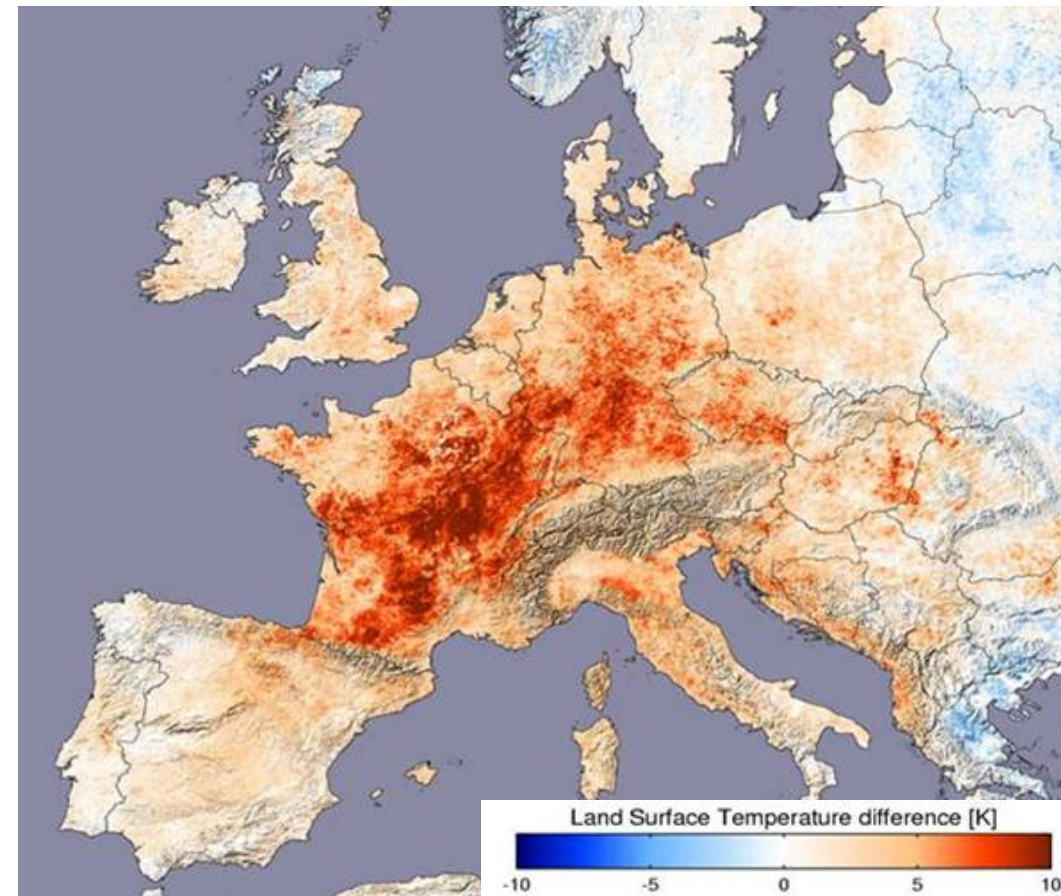
- Hot summer – will it be the normal case?



Changes in extreme events (II)

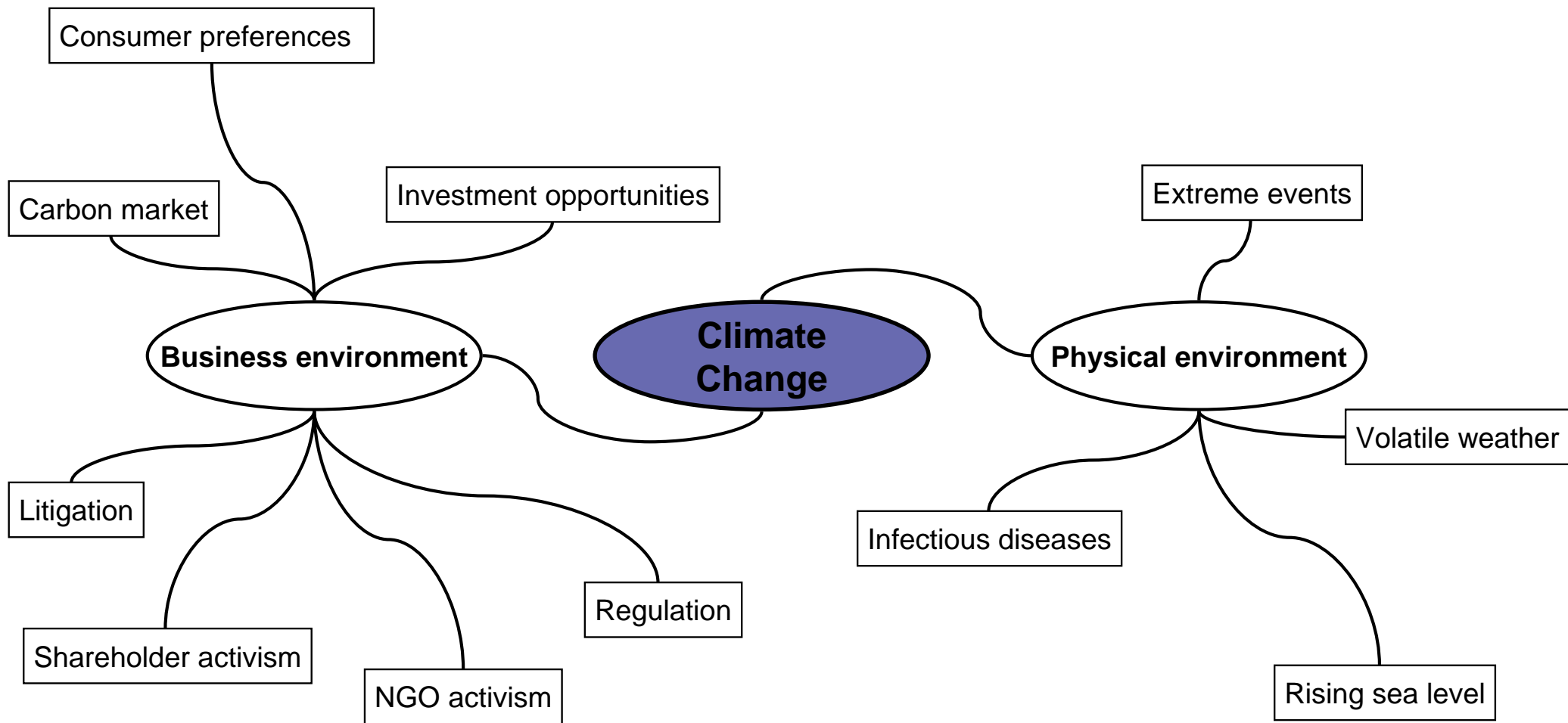
Economic impacts

- Agriculture
- Fresh water resources
- Forest fires
- Shortage of electricity
- Excess mortality
- Industry
- Tourism

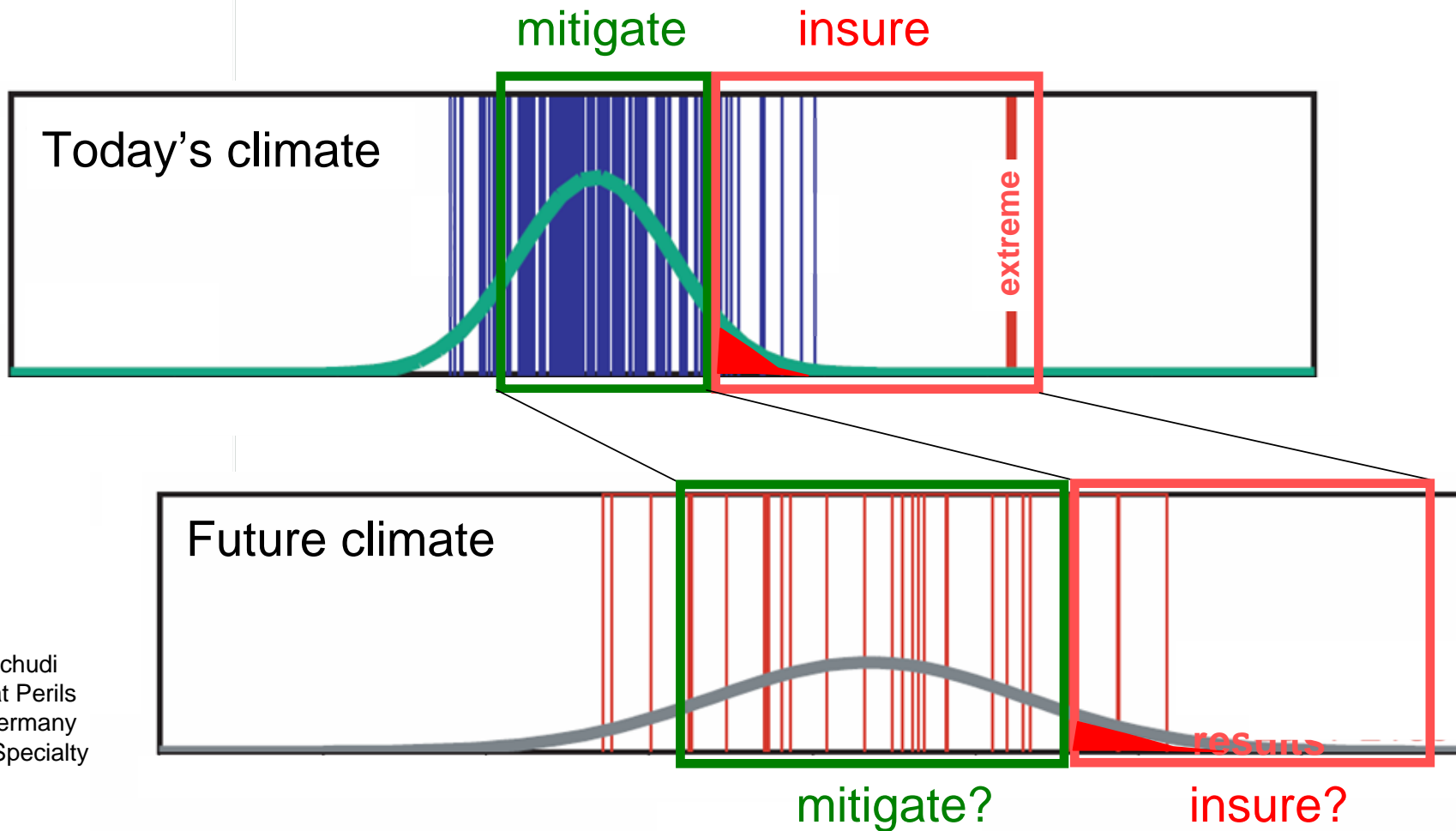




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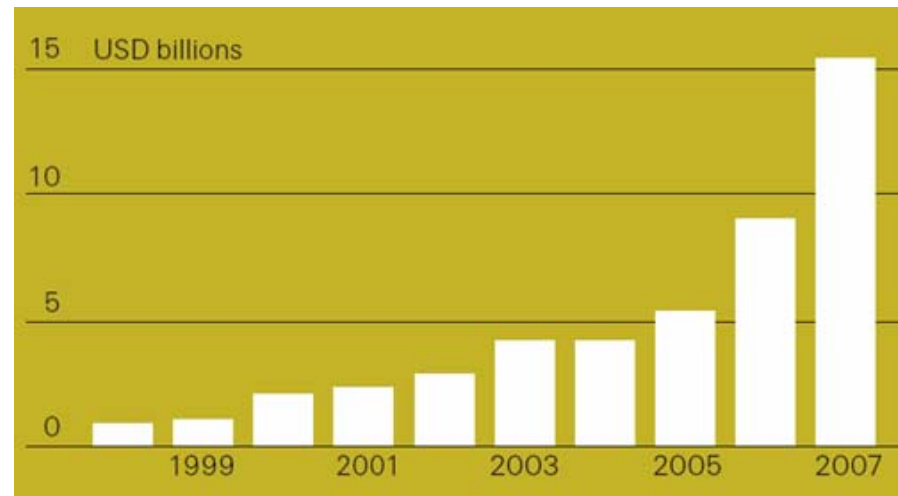
Changes in the insurance perspective





Changes in the insurance perspective

- Demand for climate change related insurance cover
 - CatXL (e.g. European winterstorm cover)
 - CatBond (e.g. Tropical cyclone cover)
 - Structured weather energy products (e.g. power plants)
 - Microinsurance (e.g. developing countries)



Total non-life bonds issued and outstanding



Changes in regulation

Non-exhaustive list:

Region:	Implemented binding targets	Planned binding or aspirational emission targets	Frameworks/ Markets
World:	Kyoto Protocol: -5.2% by 2012	- Post 2012 targets negotiations start COP/MOP2007	- Kyoto (CDM, JI) - Bali
Europe:	- Kyoto target: 8% by 2012 - EU: -20% (-30%) target by 2020 (awaiting country split)	- UK: -60% target by 2050 (binding, decision in 2007 legislature) - ...	- EU ETS related to Kyoto
US:	- CAAB 32: -25% by 2020	- Federal: 18% reduction in carbon intensity from 2002-2012 (aspirational) - US Mayors climate protection agreement: -7% by 2012 - CA: -80% by 2050 - New Mexico: -75% by 2050 - ...	- CCX - RGGI - Pending cap and trade proposals: Bingaman, Feinstein-Carper, Kerry-Snowe, McCain-Lieberman, Sanders-Boxer
Australasia:	- Kyoto target: Japan: - 6% by 2012	- China: -846 mio tCO ₂ e by 2020 - Australia: +8% above 1990 levels by 2012 - ...	- AUS ETS (dev) - Hong Kong/Guangdong pilot - Beijing announced trading scheme plans



Changes in litigation (I)

	Reports in Specialist Publications	First Regulations	First Lawsuits Filed	Successful Litigation
Asbestos :	1906 French factory report of 50 deaths of asbestos textile workers	1931 UK Asbestos Regulations specify compensation for asbestosis	1950's First lawsuits filed requesting compensation for asbestosis	1966 First lawsuit in Beaumont, Texas, against eleven manufacturers of asbestos-products 2001 Estimates of the eventual cost of asbestos mass torts range from \$200 to \$265 billion. - US Insurance loss as of 2004: USD 55 bn - Total estimated future losses: USD 275 bn
Climate change:	1950's Observations of increasing CO2 concentration in the atmosphere	2005 Kyoto protocol enters into force	2004 First lawsuits filed challenging regulatory inaction, relief against emitters, recovery of damages	?

Changes in litigation (II)



■ New residential area – future risk?



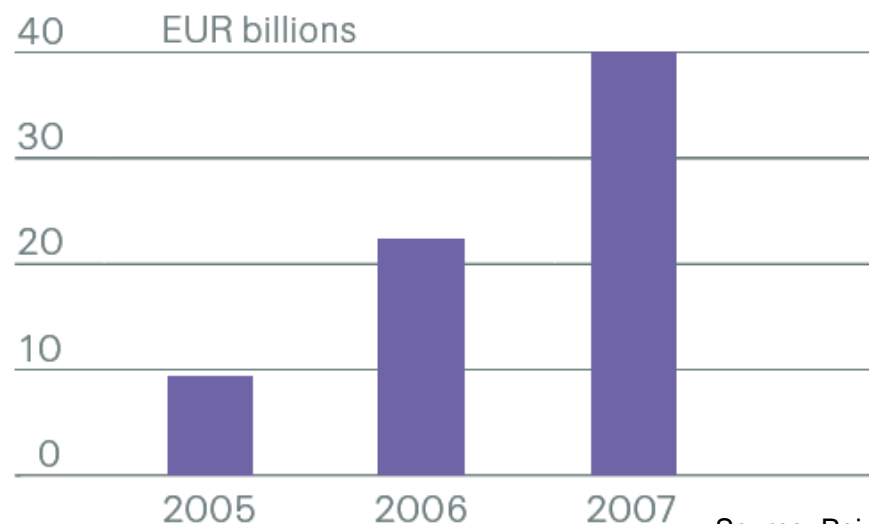
Changes in the shop (I)

Example

Flight Munich – Oslo
– Munich

→ About* 1 ton CO₂

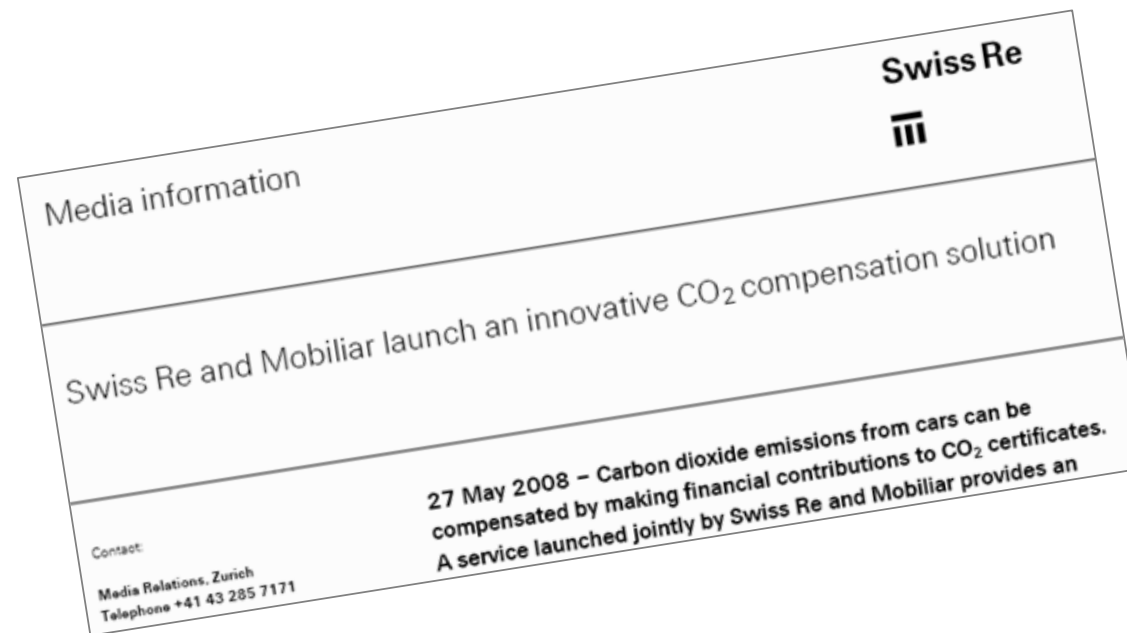
- Global carbon market grew in value to an estimated €70 billion in 2008



Source: Point Carbon

- Dominated by European Union Emissions Trading Scheme
- Present day value: some 20 € per ton CO₂e (high in 2008: almost €30)

Changes in the shop (II)



- Online compensation of personal CO₂ emission
- Linking market know-how with personal needs



Changes in the shop

- **Energy savings insurance**
protecting the installer or owner of an energy efficiency project from under-achievement of predicted energy savings
- **Renewable energy project insurance**
covering performance risk for renewable energy systems, e.g. through wind power derivatives
- **Green building insurance**
replacing conventional property damaged or destroyed in a covered loss with improved green and/or energy-efficient property
- **Pay-as-you drive insurance**
insurance premiums are charged according to actual miles driven
- **Carbon insurance**
covering business and performance risks associated with projects designed to achieve emission reduction certificates

Swiss Re's response

Jacques Aigrain, CEO of Swiss Re:

„... climate change has become an important element of our long-term risk management strategy.“

Four strategic priorities:

- Understand the risk & adapt pricing and risk models accordingly
- Influence the business environment by raising awareness at industry & governmental level
- Leverage the opportunities by developing products & services for mitigation and adaptation
- Address own environmental footprint





Agenda

