From Risk to Opportunity

Climate Change and the Insurance Industry

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Outline

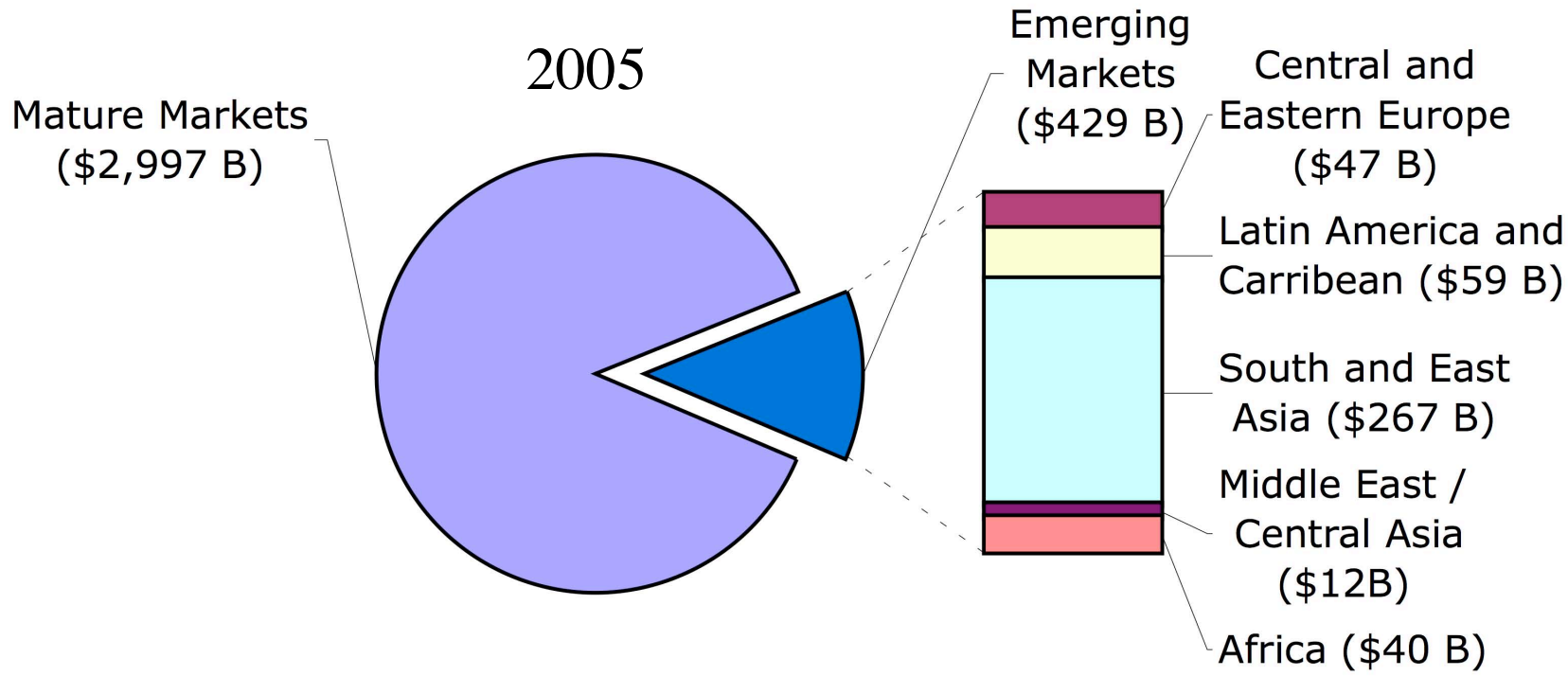
- Overview of the insurance sector
- Risks from climate change
- Risks from responses
- Opportunities

Thread:

False dichotomy of reducing emissions vs. reducing impacts

$3.4 *trillion* world insurance market

- World's biggest industry; enormous political influence
- Most "lines" vulnerable (property, liability, life, health)
- Availability and affordability -- major public policy issues

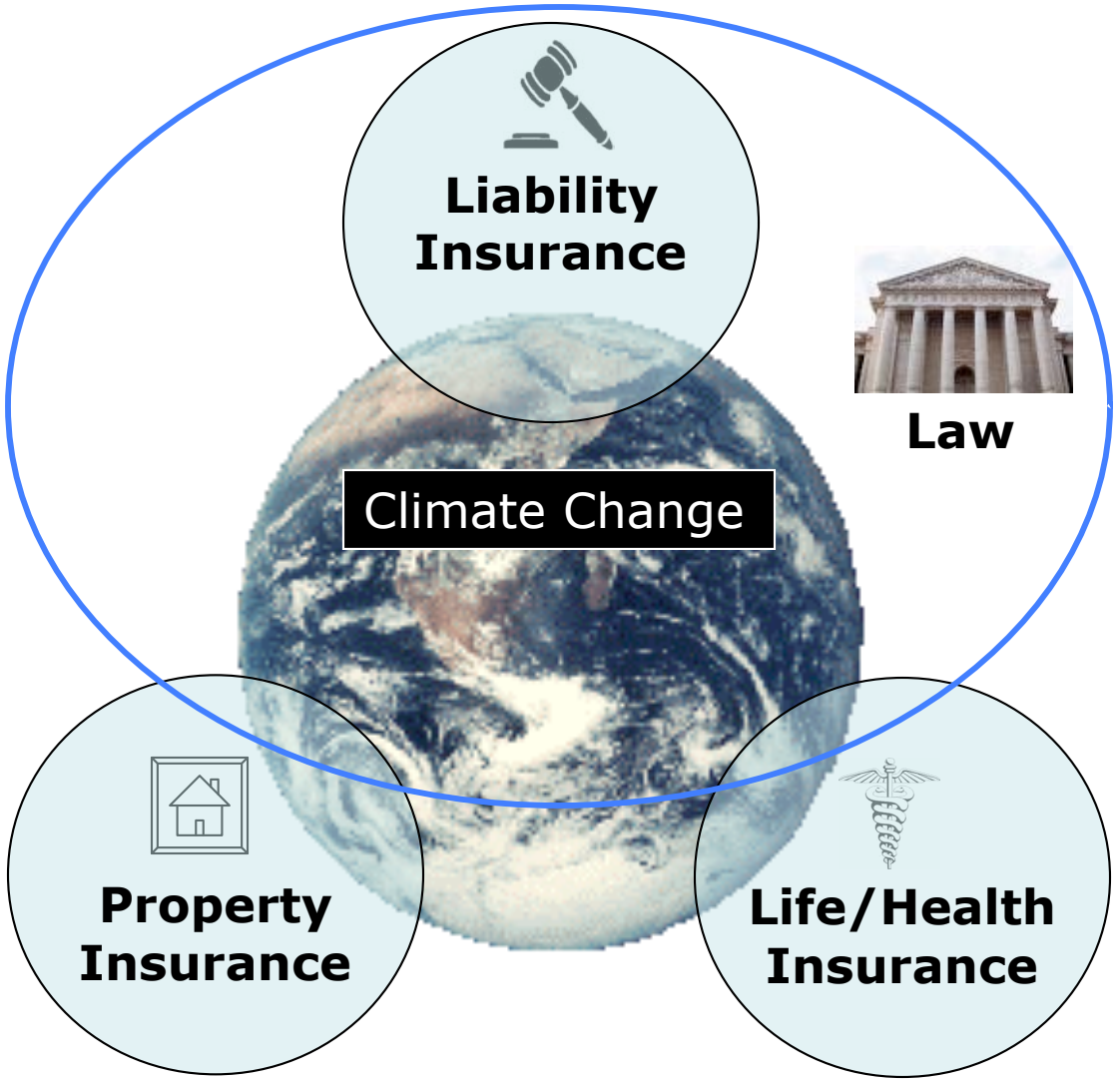


Source: Swiss Re, Sigma No. 5/2005

Climate Change:
Intersection with insurance and law

Insurers are....

- integrators
- risk managers
- adaptive capacity
- vulnerable
- selective
- potential part of solution



Insurance-relevant consequences

- Property damage
- Mold/moisture
- Forest products
- Agricultural losses
- Business interruption
- Roadway

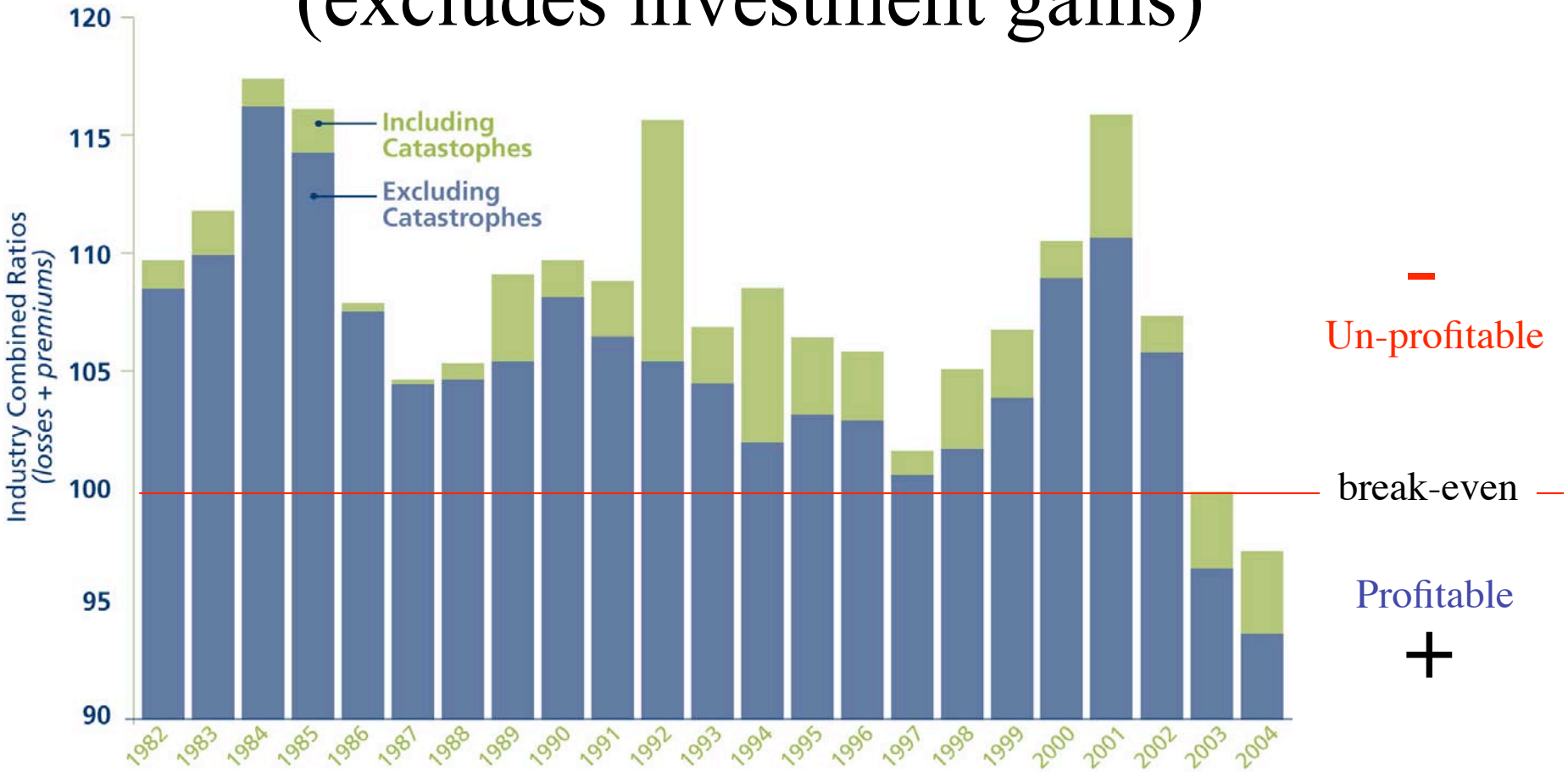
- Injury
- Infectious diseases
- Heat stress
- Respiratory
- Pollutant releases
- Food poisoning
- Mental health
- Nutrition/water

- General
- Product
- Environmental
- Professional
- Political Risk
- Roadway

"CATs" play a key role in profitability

P&C Combined Ratios: 1982-2004

(excludes investment gains)



Note: Catastrophes are not the only climate change impact of concern

Source: AM Best, Aggregates & Averages

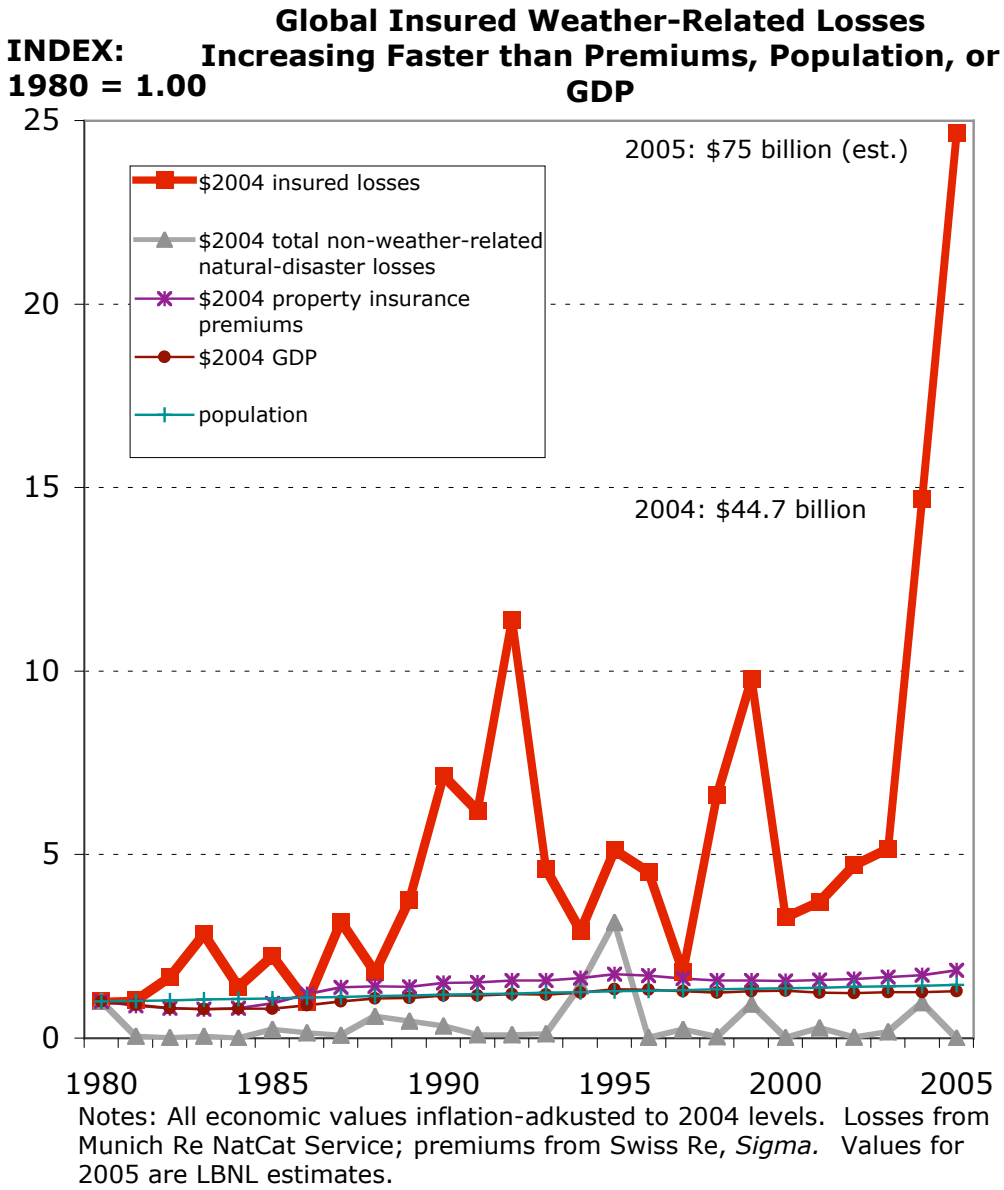
Uncertainty: Physical ➡ Financial

"We'd be out of our minds if we wrote weather insurance on the opinion global warming would have no effect at all."

- Warren Buffett
2006 annual shareholder meeting

Non-climate factors play a role, but…

- Trends *consistent* w/ observed change
- Why are non-weather losses level?
- Even worse without prevention efforts

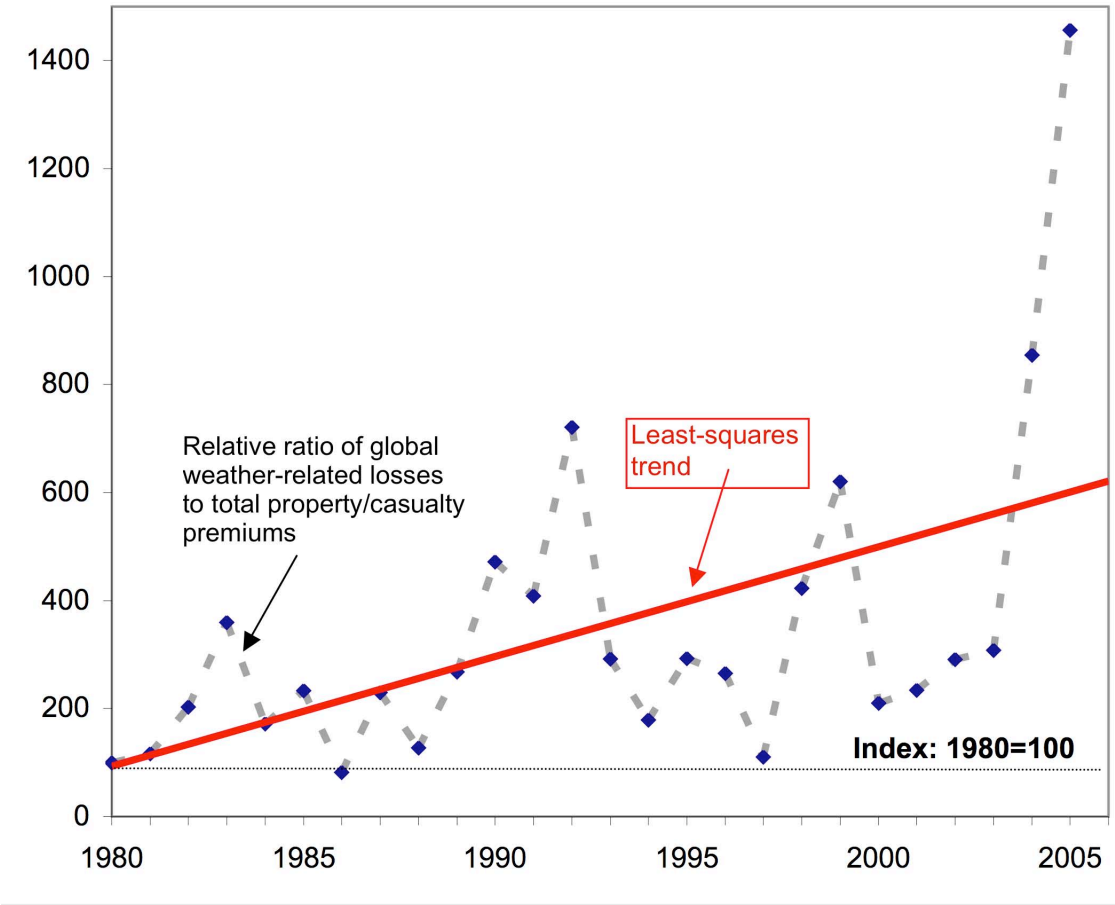


Risk is OK; Uncertainty is not

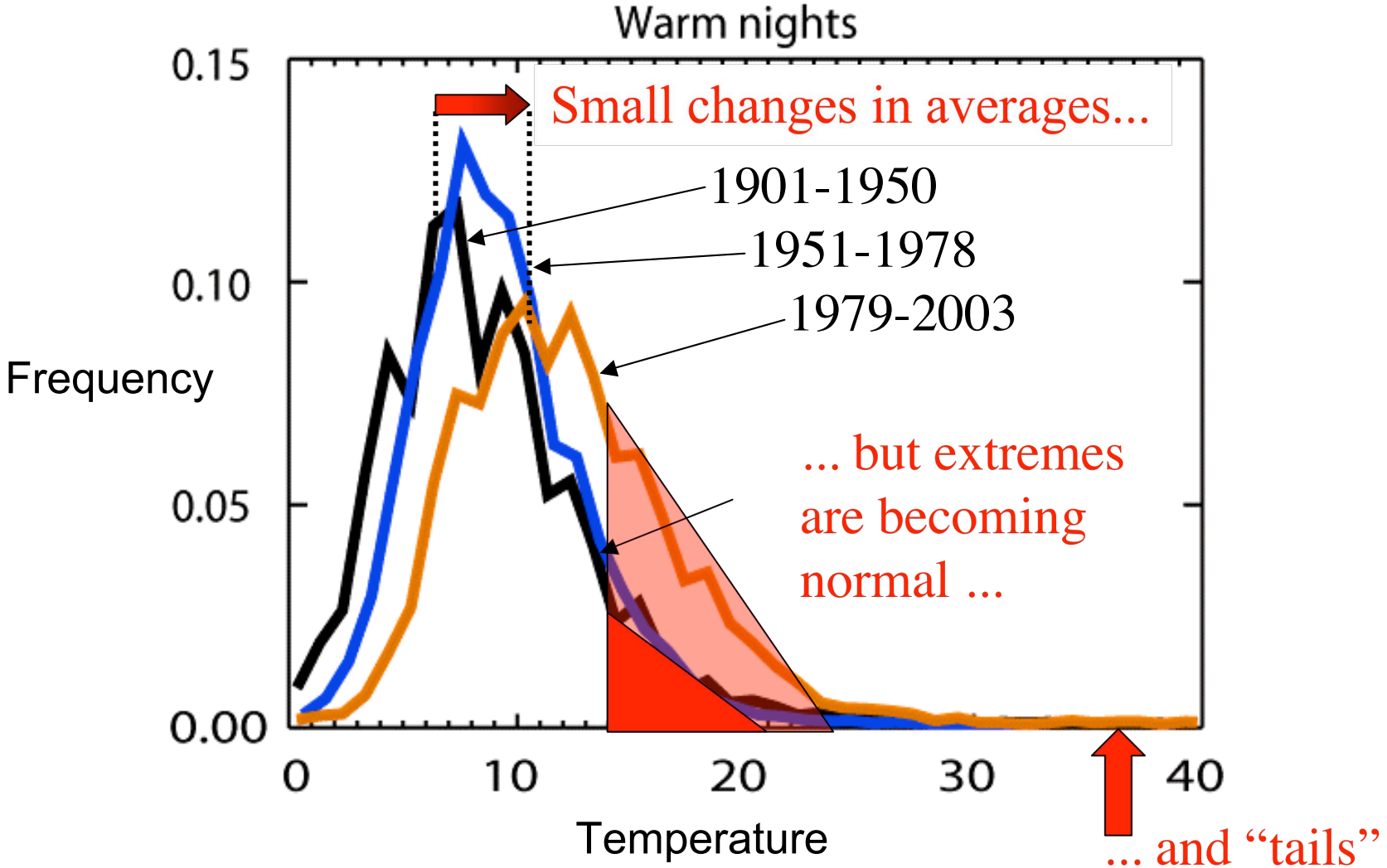
The ratio of losses to premium revenues is increasing; So is the volatility

Unknowns:

- Underwriting
- Operations
- Investments
- Shareholders
- Reputation
- Regulation
- *Insurability*



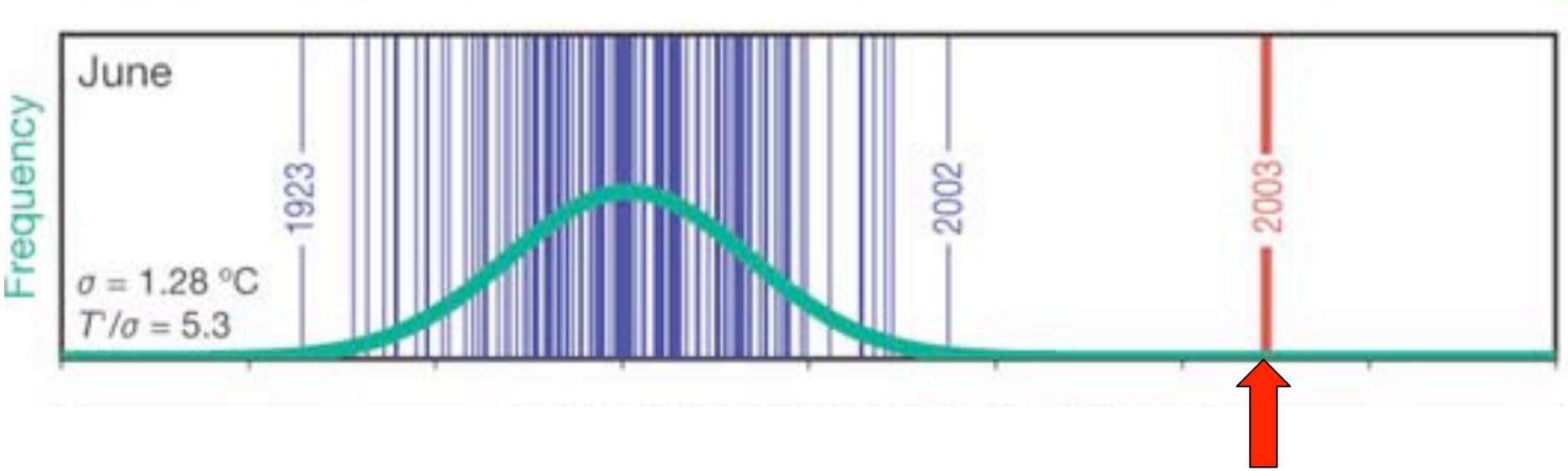
Extremes shifting *more* than averages



Source: IPCC 4th Assessment Report

Rare extremes cause most of the damages & insured losses

The European heat wave of Summer 2003



Event was "six-sigmas" outside of norm.
16°F above average in France and Germany
was a 1-in-10,000 event to 1-in-46,000 event

Source: Schar et al, *Nature*, v. 427, 2004.

Risks are associated with responses *to* climate change

- **Impact reduction** – efforts to decrease vulnerability
  - Integrity of defenses
  - Risk of mal-adaptation
- **Emissions reduction** – supply- and demand-side energy choices
  - Green Buildings
  - Nuclear power
  - Hydrogen energy
  - Renewable energy
  - Carbon capture & storage

Carbon capture and storage (CCS)

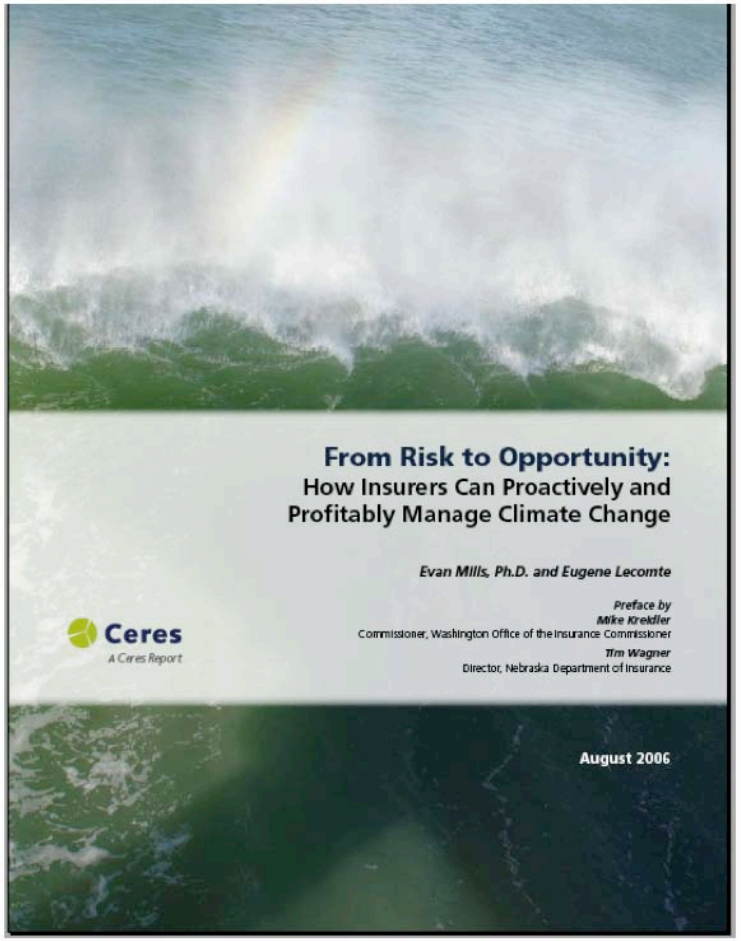
- Lake Nyos - 1986 (Cameroon): Natural CO_2 leak suffocated 1800 people, 3500 farm animals

From Risk ⟹ … to Opportunity

The insurance sector has a key role to play in helping to mitigate the effects of climate change … and by developing new products and solutions that can support emerging greenhouse-gas and renewable energy markets.

- Marsh & McLennan

New Report:
~220 examples; ~120 insurers
[*modest* beginnings]



Top-10 practical strategies

1. Promoting loss prevention
2. Crafting innovative insurance products
3. Providing new customer services
4. Participating in carbon markets
5. Rewarding good behavior
6. Investing in solutions
7. Conducting research
8. Participating in the public policy discussions
9. Leading by example
10. Educating each other

Promoting loss prevention

- Meets ***Institute for Business and Home Safety's*** "Fortified… for safer living" stds.
  - Wind-resistant rigid foam panel walls and multi-glazed windows
  - Ice-dam resistant
  - Mold resistant
  - Water-resistant insulation

BASF Home - Patterson NJ

Some insurers are giving premium credits….

Crafting innovative insurance products

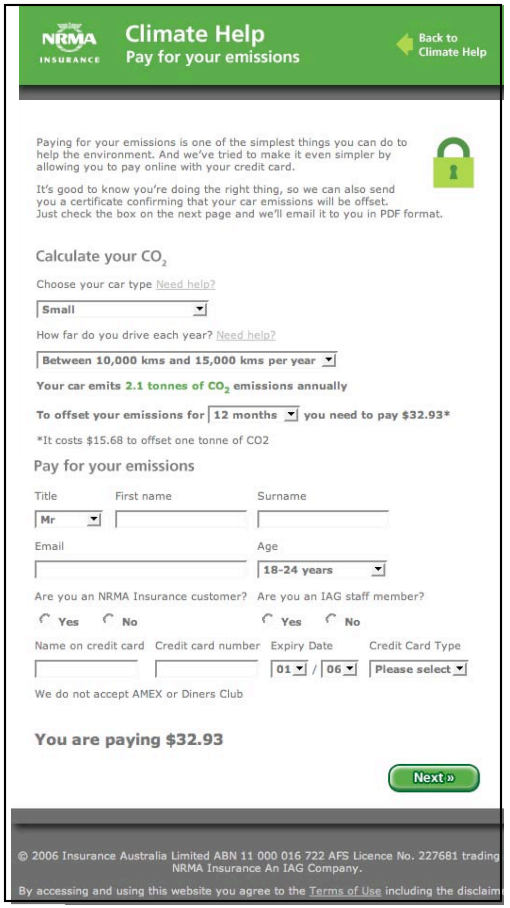
- ***Fireman's Fund***: first-ever "Green-Buildings Insurance"
  - Premium credits for green features
  - Rebuild to green standards after loss

- ***Munich Re***: geothermal energy production insurance

- ***Lloyds***: Energy Savings Insurance

Providing new customer services

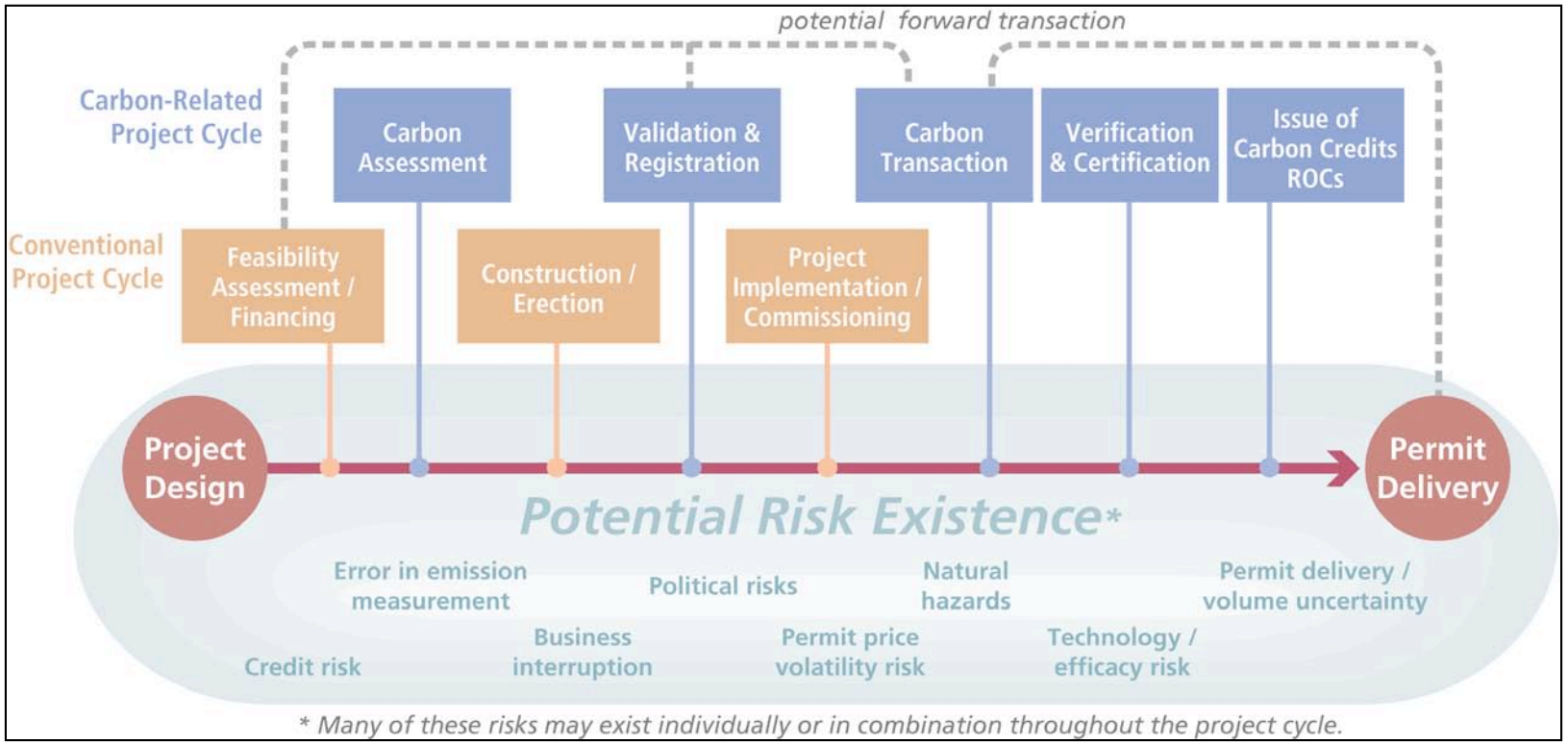
Insurance Australia Group offering on-line automobile carbon-offset service for customers



Source: http://www.climatehelp.com.au/

Participating in carbon markets

- ***AIG***, ***Marsh***, others offering carbon project risk-management consulting services; insurance

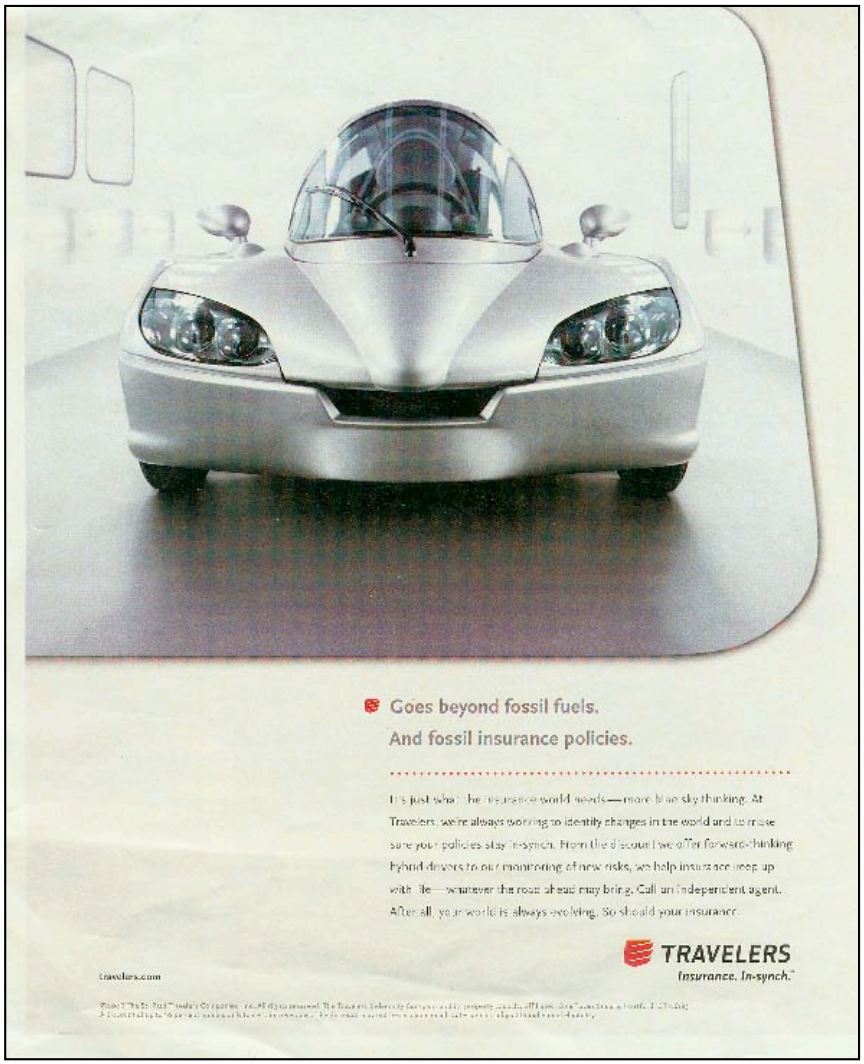


Source: Marsh. 2004. "Responding to Climate Change Risks and Opportunities."

Rewarding good behavior

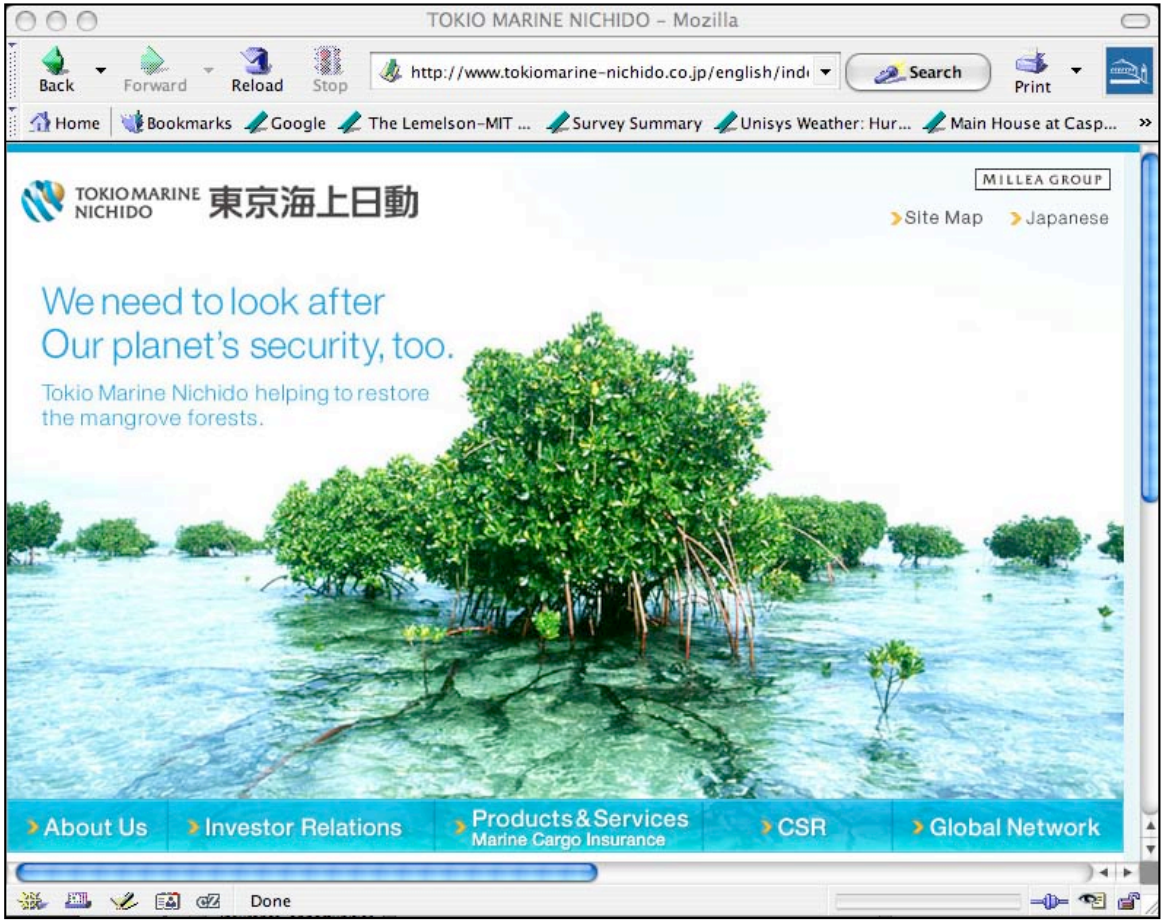
- ***Travelers*** offers 10% premium discount to drivers of hybrids

- ***GMAC*** offers "pay-as-you-drive" insurance discounts of up to 40%



Investing in solutions

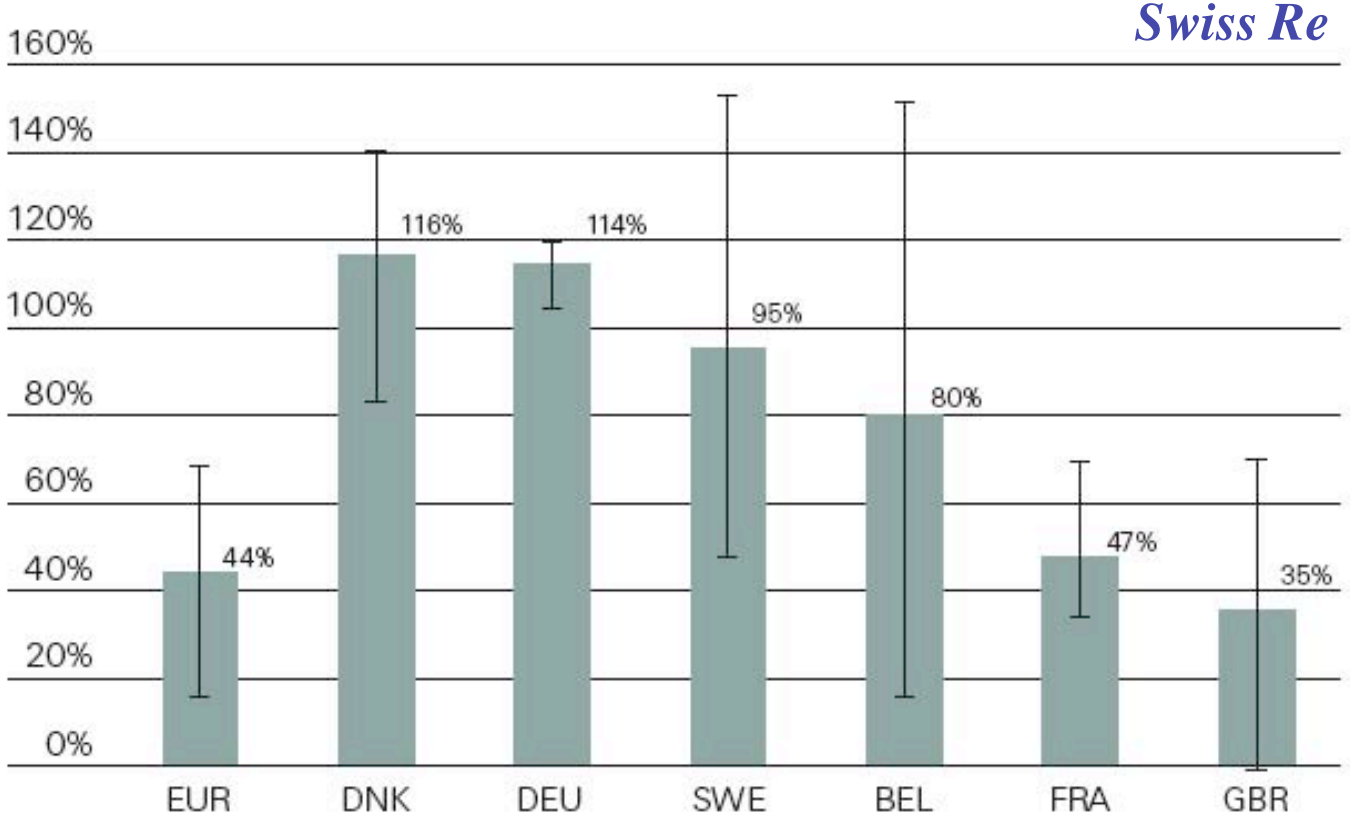
- ***Tokio Marine & Nichido*** has reforested 7,500 acres of mangroves in Indonesia, Thailand, Philippines, Myanmar and Vietnam. 5,000 more acres in progress



Source: http://www.tokiomarine-nichido.co.jp/english/index.html

Conducting research

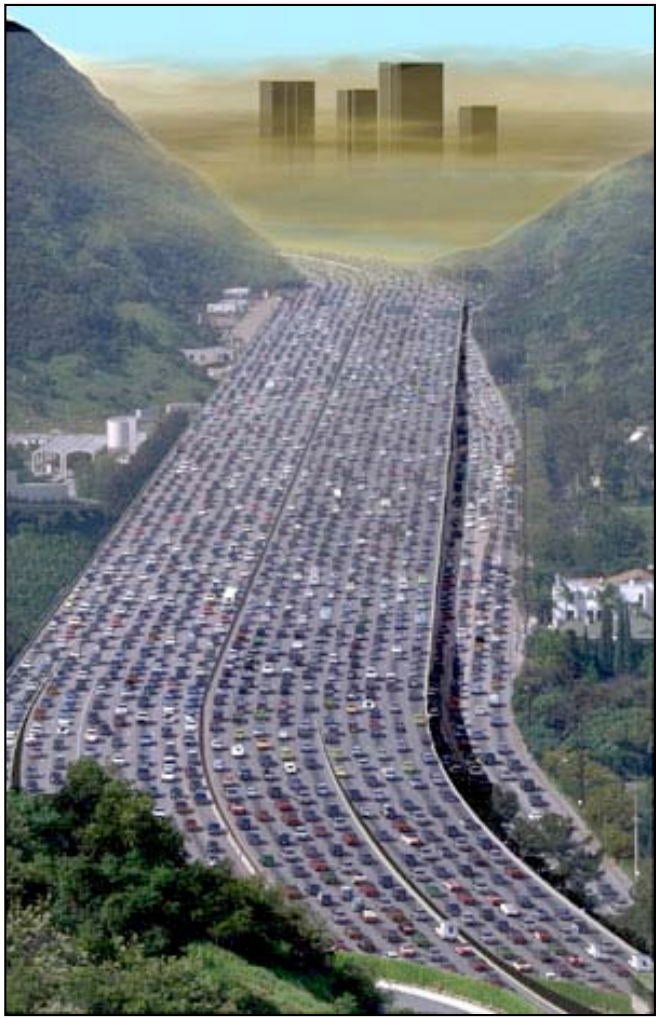
Expected increase in annual windstorm loss in Europe



Increase in annual expected loss for Europe (EUR), Denmark (DNK), Germany (DEU), Sweden (SWE), Belgium (BEL), France (FRA) and the UK (GBR) over the period 1975 to 2085 (in %). The broad bars represent the mean value of the climatic models, and the error bars show the spread of the results from all models

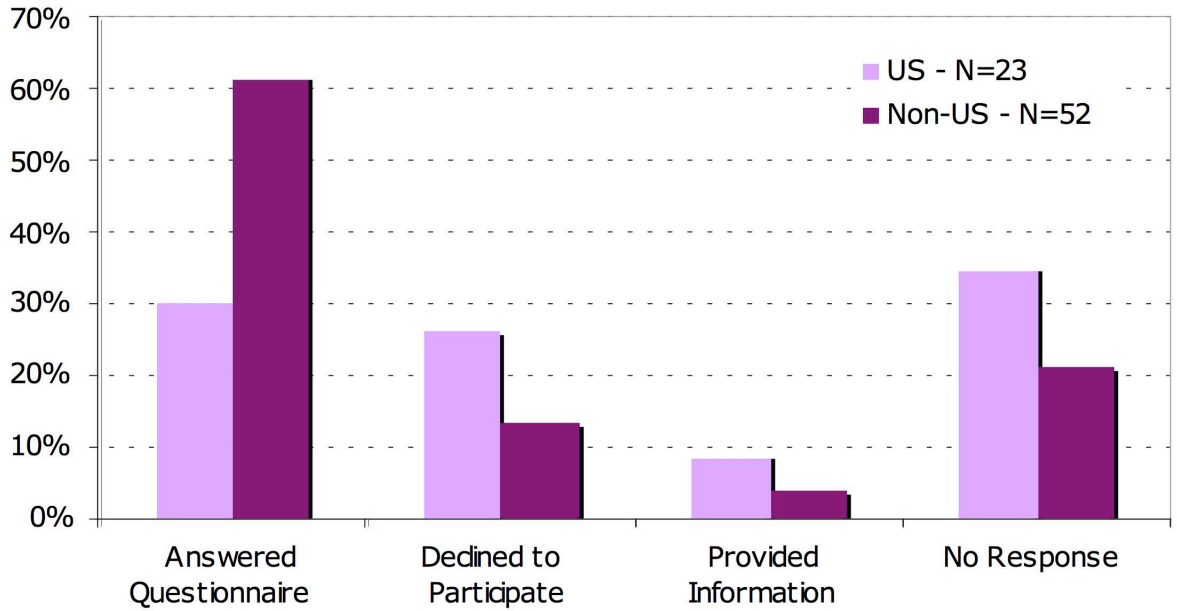
Participating in public policy discussions

- ***American Insurance Association*** - Endorsing public transportation; reduced speed limits; telecommuting based on win-win benefits to insurers
- ***Association of British Insurers*** advising City of London on land-use planning and flood defenses



Leading by example

Carbon Disclosure Project
Insurers' responses: ***AIG, Aon, Marsh & McLennan, MBIA, Safeco, St. Paul Travelers, Unum Provident***



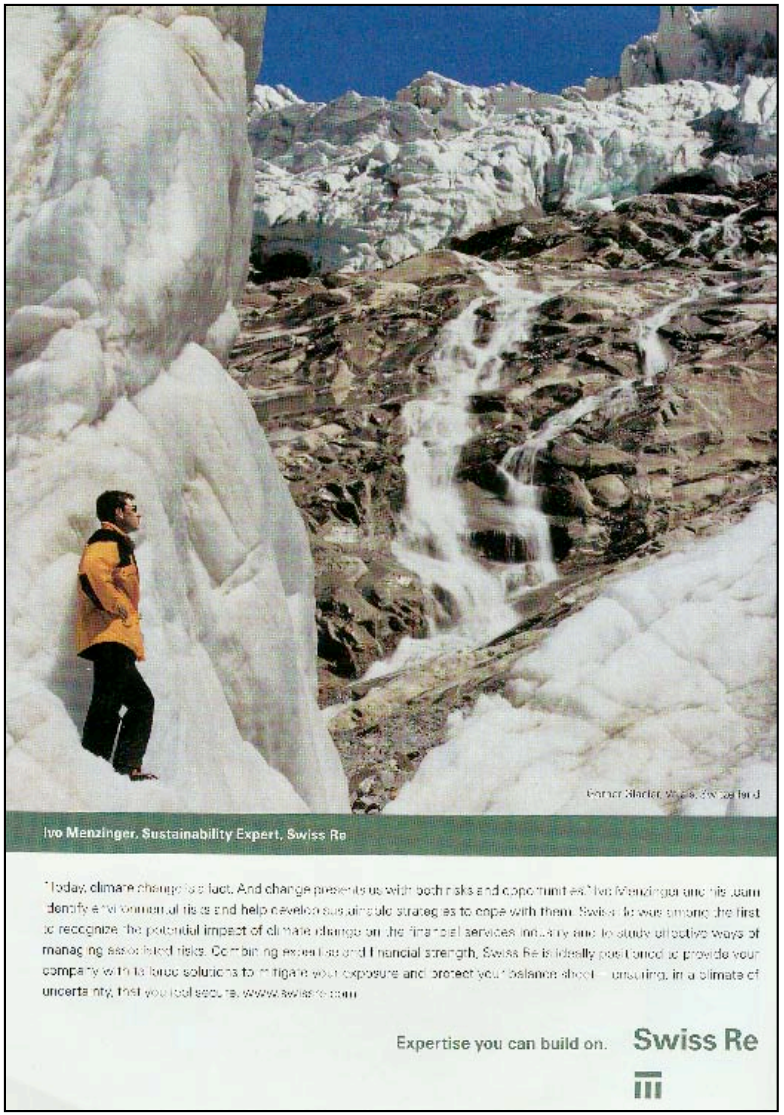
Swiss Re's "Gherkin" building (London)

- Energy efficient
- Daylighting
- Natural ventilation

Source: http://www.cdproject.net/

Educating each other

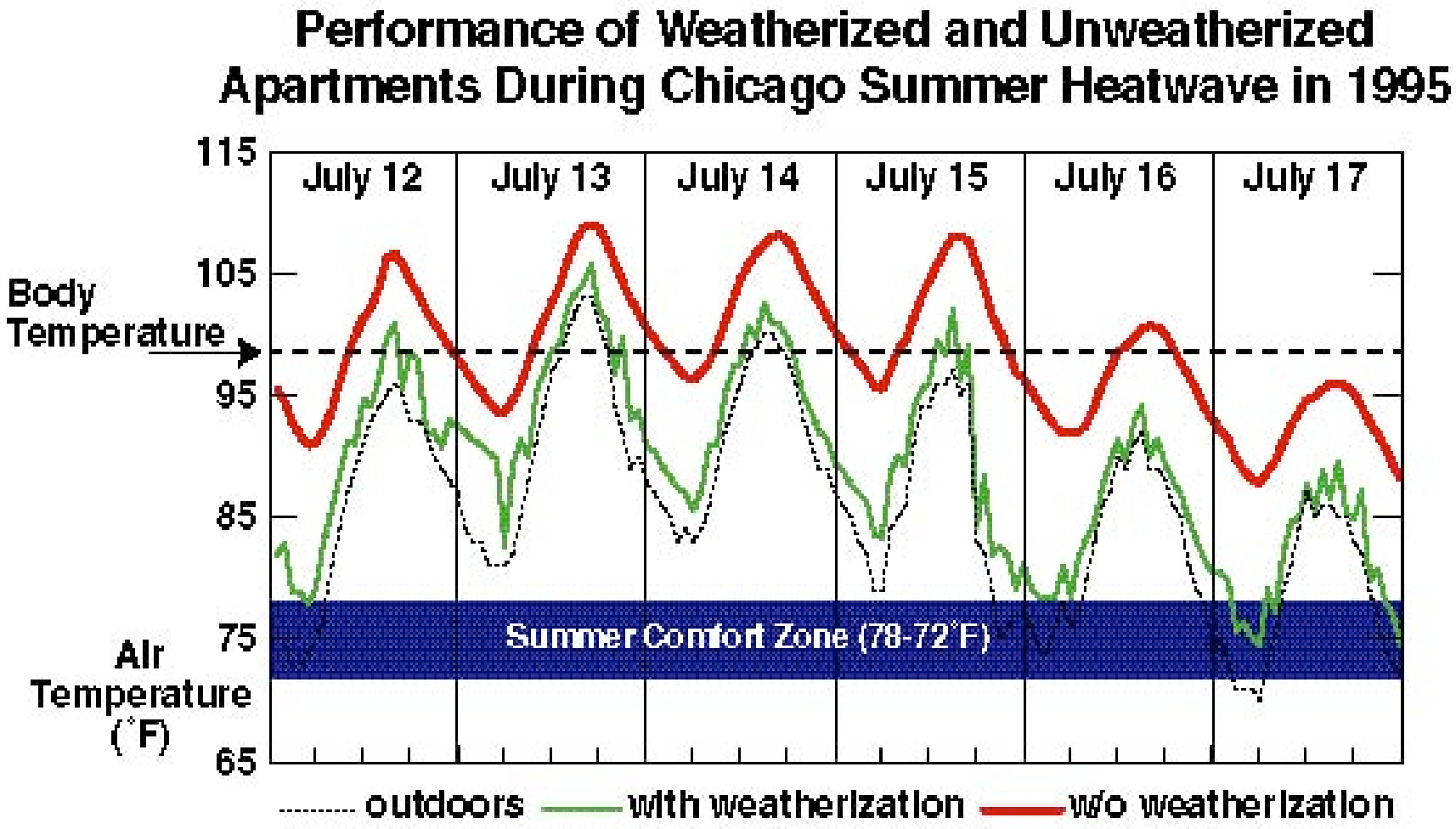
- ***Swiss Re*** has run full-page adds on climate change in major insurance trade journals for several years



Bottom line....

- The insurance sector - ***is a powerhouse***
- Risks from climate change - ***are material***
- Risks from responses - ***are under-appreciated***
- Opportunities - ***very significant; off to good start***
- Emission *vs.* impact reduction: ***strong synergisms***

Emission-/Impact-reduction Synergisms
Avoiding heat deaths thru energy efficiency



Source: Lawrence Berkeley National Laboratory

http://insurance.lbl.gov

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