

Climate Change: Fact vs. Fiction and Implications for our Profession and Industry

Moderator:

David Na, Towers Perrin

Panelists:

Doug Collins, Towers Perrin

Katharine Hayhoe, Texas Tech University

Casualty Actuaries in Reinsurance Seminar

May 18-19, 2009

Climate Change: Implications for our Profession and Industry

Insurance industry view:

Doug Collins, Towers Perrin Bermuda

CAS Climate Change Committee

- Our charge: To recommend, support, and perform research on climate change and assess the potential risk management implications for the insurance industry
- Potential areas to pursue:
 - Implications of likely future scenarios
 - Models
 - Reporting and disclosure requirements
 - Public relations and policy issues
 - Historical data
 - Education for our members and stakeholders

CAS Climate Change Committee

- Our membership (26 and counting):
 - 22 P&C and Life actuaries from Bermuda, US, Canada, Australia, UK
 - 2 scientists
 - 2 communications specialists
- Our subcommittees (3 and counting):
 - Actuarial Climate Volatility Index
 - Going Green
 - Student Outreach
- Chair: Susan Woerner

Actuarial Climate Volatility Index

- Image Advisory Group feasibility discussions
- ACVI Subcommittee working on full feasibility study
- Concept:
 - Create 100-year database of climate change measures
 - Develop indices of volatility and trends
 - Temperature, precipitation, sea level, tropical cyclones
 - Global/regional, annual/quarterly
 - Relate to various costs including insurance
 - Actuaries and climate scientists working together

Implications for the industry

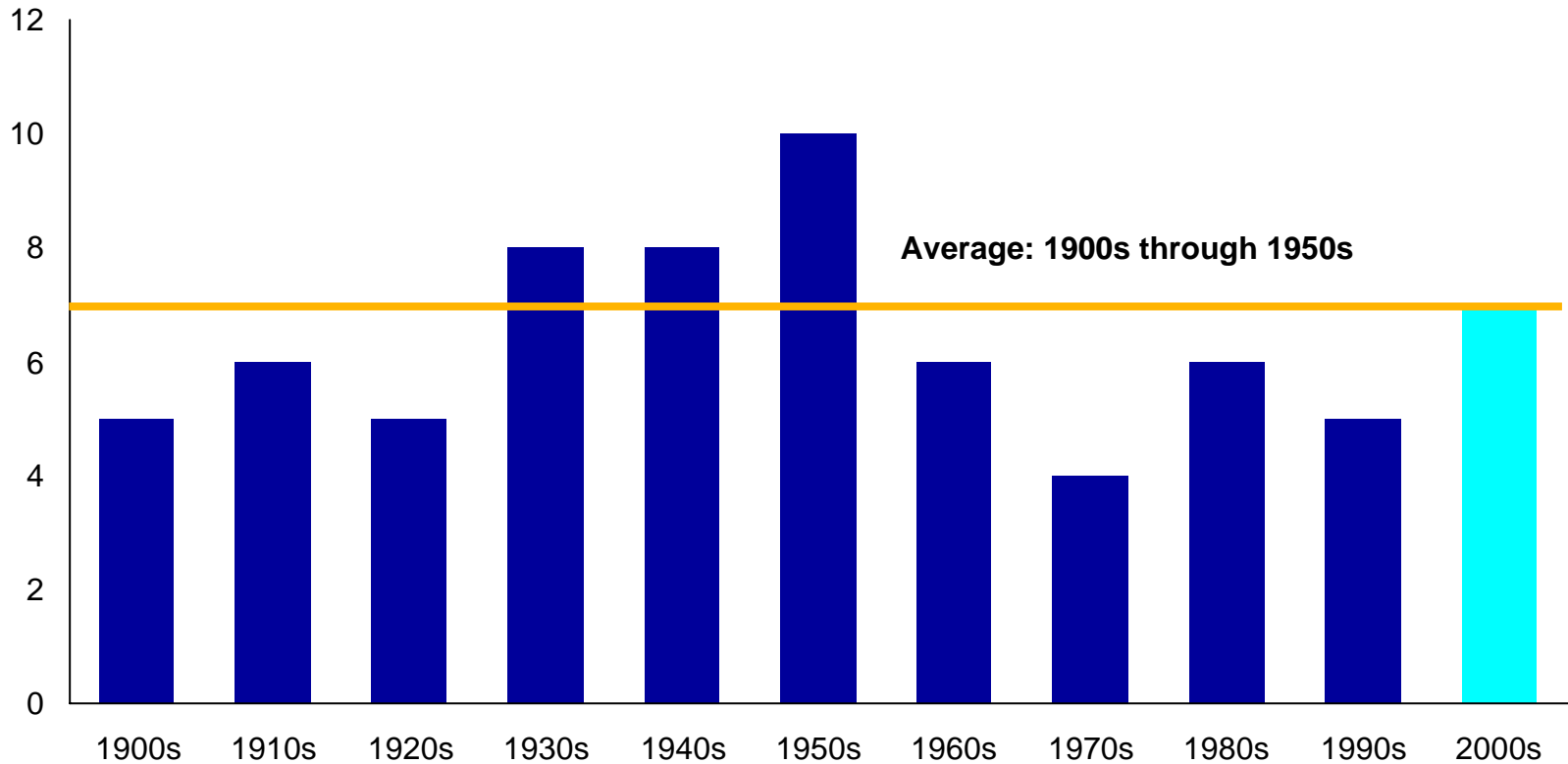
- Claims
 - Property (fire, flood, wind, drought)
 - Casualty (environmental liability, D&O)
 - Life & health
- Expenses
 - Regulatory (NAIC, SEC, EU, rating agencies)
 - Becoming green
- Underwriting
 - Products, terms and pricing
- Investments
 - Green technologies

NAIC Insurer Climate Risk Disclosure Survey

- Goal: Collect information about risks posed and actions taken in response to insurers' understanding of climate change risks.
- Timetable: 2009 survey due May 1, 2010 for insurers with premiums over \$500 million.
- Survey questions cover:
 - Plans to assess, reduce or mitigate emissions
 - Policy with respect to risk and asset management
 - Process for identifying, assessing and managing risks
 - Current and anticipated risks and areas affected
 - Steps taken to encourage policyholders to mitigate

Is the frequency of U.S. landfalling hurricanes a useful measure of climate change?

Number of Major (3, 4, 5) Hurricanes Hitting the U.S. by Decade



Source: Hurricane data from the National Hurricane Center; figure for 2000s is through 2008

A few important numbers...

- 57.2° F (average surface temperature of Earth, 1961-1990) Source: Katharine Hayhoe's accompanying presentation
- +5.5° F (increase in average temperature between the last ice age, 15,000 years ago, and the 18th century) Source: The Rough Guide to Climate Change
- +5-9" (increase in sea level during the 20th century) Source: IPCC 2007 climate change assessment report

Selected Information Sources

- From Risk to Opportunity, Insurer Responses to Climate Change, Evan Mills, April 2009, Ceres
- Climate Change Is Heating Up D&O Liability, Carol A. N. Zacharias, The John Liner Review, Spring 2009
- The Rough Guide to Climate Change, Robert Henson, 2nd Edition, 2008
- Normalized Hurricane Damages in the United States: 1900-2005, Roger A. Pielke Jr., Christopher W. Landsea, Douglas J. Collins, Mark A. Saunders, Rade Musulin; Natural Hazards Review, February 2008
- A Macro Validation Dataset for U.S Hurricane Models, Douglas J. Collins and Stephen P. Lowe, CAS Forum, 2001
- So Much for Global Warming, Douglas J. Collins, Emphasis, 2001, Issue 3
- Web sites:
 - <http://insurance.lbl.gov> (Evan Mills - Insurance in a Climate of Change)
 - http://www.naic.org/committees_ex_climate.htm
 - http://www.reinsurance.org/files/public/RAA_Climate_Change_Policy_Statement.pdf
 - <http://www.iii.org/media/met/cmf/> (Insurance Information Institute, Catastrophe Modeling Forums)
 - <http://www.ipcc.ch/ipccreports/index.htm> (Intergovernmental Panel on Climate Change reports)