Managing Climate Change Liability Risks:

Examples from the Insurance Sector

Munich Re Workshop
October 14, 2008
Princeton, NJ

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Staff Scientist
U.S. Department of Energy
Lawrence Berkeley National Laboratory

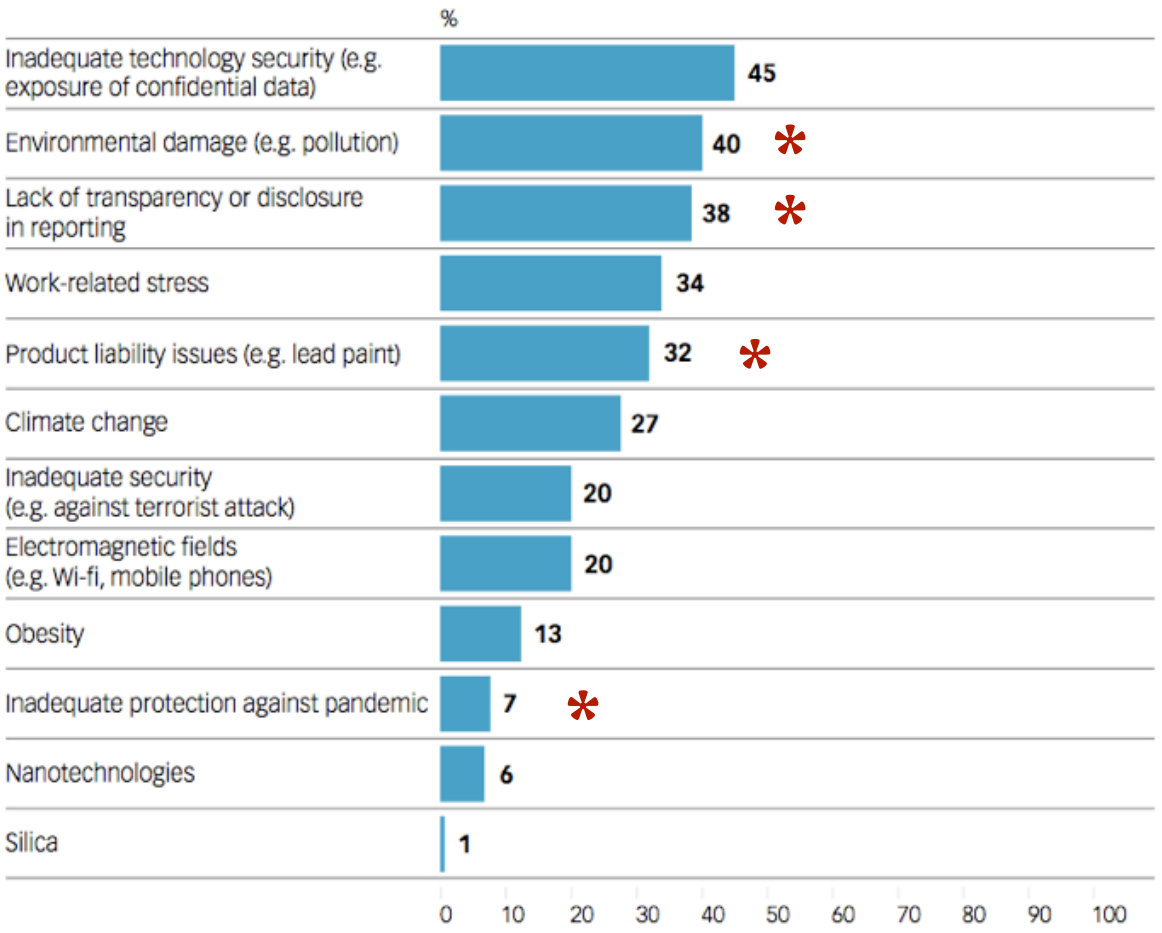
Top Concerns: Survey of 139 Insurance Executives in 21 Countries

1	Too much regulation *	12	Managing technology	23	Corporate governance *
2	Natural catastrophes	13	Equity markets	24	Demographic trends
3	Management quality	14	Risk-management techniques *	25	Contract wording
4	Climate change	15	Back office	26	Capital availability
5	Managing the cycle	16	Political shocks and pressures *	27	Security of reinsurance
6	Distribution channels	17	Pricing new risks *	28	Availability of reinsurance
7	Long-tail liabilities *	18	Terrorism	29	Business continuation
8	Actuarial assumptions	19	Complex instruments	30	Fraud
9	Longevity assumptions	20	Retail-sales practices	31	Merger mania
10	New types of competitors	21	Pollution *	32	Too little regulation
11	Investment performance *	22	Interest rates	33	Asbestos

* = also influenced by climate change

Source: Centre for the Study of Financial Information and PricewaterhouseCoopers survey: 2007

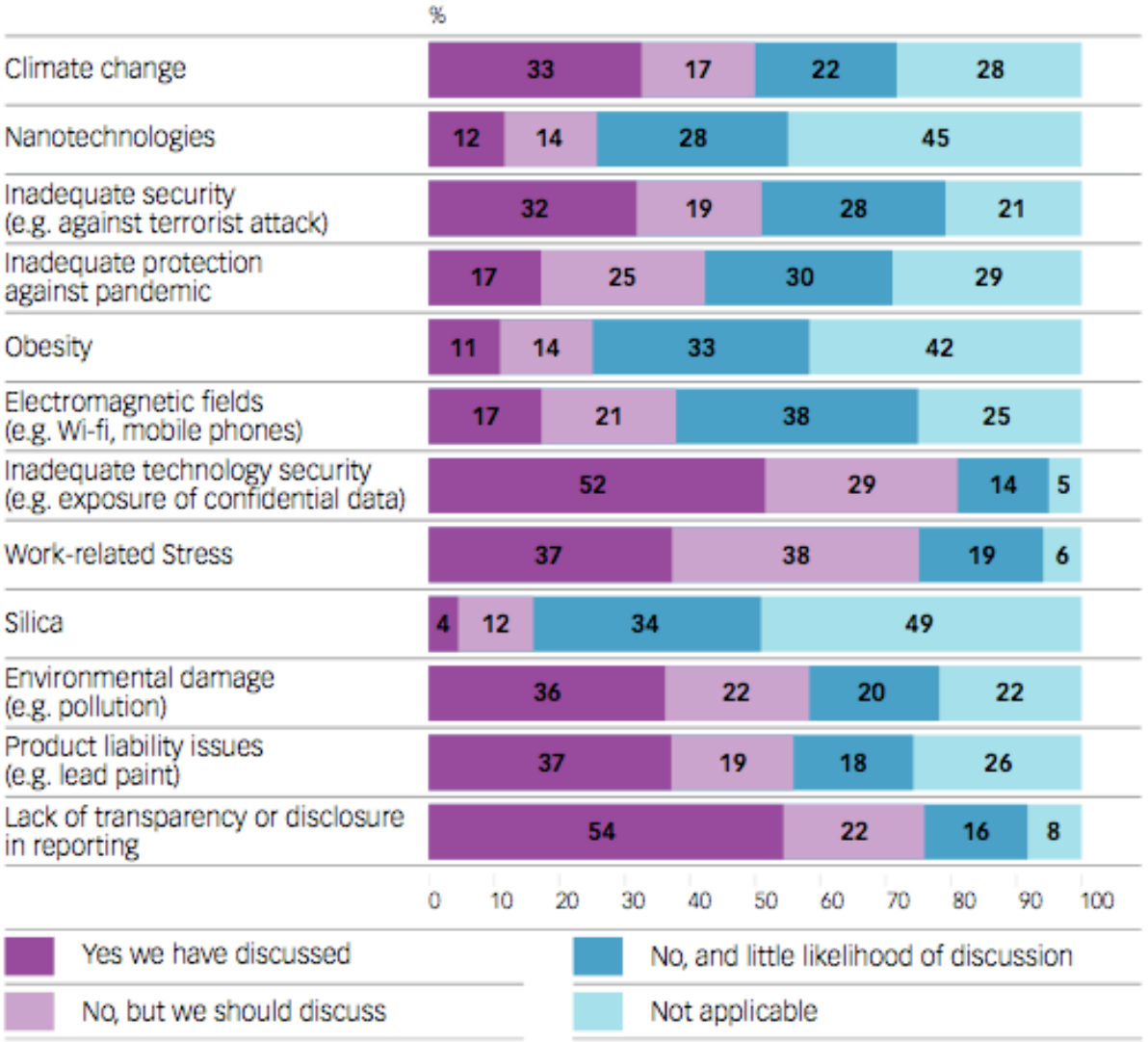
Looking ahead five years, which of the following could give rise to a major new wave of liability claims?



* = also influenced by climate change

Source: Lloyds of London, “Directors in the Dock: Is Business Facing a Liability Crisis?”, Survey of 183 board-level corporate executives conducted by the Economist Intelligence Unit, 2008.

Has your company discussed the potential risks at board level?



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Business Insurance

February 5, 2007

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ANOTHER APPEALS COURT RULES CASH BALANCE PLANS DON'T DISCRIMINATE / PAGE 3

FINANCIAL GUARANTEE INSURER PAYS $75 MILLION TO SETTLE FINITE CHARGES / PAGE 3

RADIO STATION RISK MANAGERS TO INCREASE ON-AIR OVERSIGHT AFTER CONTEST TRAGEDY / PAGE 3

In Brief

Mich. court rejects same-sex benefits

Michigan's 2004 marriage amendment prohibits public employers in the state from offering health benefits to employees' same-sex domestic partners, the Michigan Court of Appeals ruled in a unanimous 4-1 decision in Rowland v. Mich. Civil Rights Commission of Michigan and City of Ann Arbor. A three-judge panel held that public employer plans that recognize domestic partnership agreements for the purpose of providing benefits "violate the plain language of the amendment."

Bias claims up in 2006: EEOC

A total of 75,768 discrimination charges were filed with the U.S. Equal Employment Opportunity Commission in fiscal year 2006,

See IN BRIEF page 22

U.N. climate report stirs liability fears

Scientific testimony may fuel lawsuits on global warming

By ROBERTO CENICEROS

The publication of a U.N. report last week linking human activity to global warming won't be enough to cause immediate liability problems for industrial companies, but it does increase the chances of more claims filtering through to insurance policies in the future, some experts say.

The report, which links the burning of fossil fuels with more extreme climate conditions, may increase the likelihood that commercial policyholders and their liability insurers will have to fund more defenses against allegations that global warming played a role in causing Hurricane Katrina, which damaged the homeowners' properties.

The lawsuit, which "everybody thought would get thrown out and didn't," represents a "shot across the bow" for companies that expected liability for global warming-related losses, said Dave Dybdahl, president of American Risk Management Resources Network LLC, a Madison, Wis.-based environmental wholesale brokerage.

In addition, last year then California Attorney General Bill Lockyer sued several Japanese and U.S. auto manufacturers, said G. Andrew Lundberg, a policyholder attorney at Latham & Watkins LLP in Los Angeles.

The lawsuit alleged that the

Marsh reaps $3.9B with Putnam deal

Investment firm sale will sharpen focus, boosts war chest

By SALLY ROBERTS

NEW YORK—Marsh & McLennan Cos. Inc.'s sale of Putnam Investments, its asset management unit, is expected by leading analysts to make the brokerage a larger and more focused, analysts say.

Great-West Lifeco Inc., a Winnipeg, Manitoba-based unit of Montreal-based Power Financial Corp., will purchase Boston-based Putnam for an all-cash $3.9 billion deal announced last week. The sale will enable New York-based M&M to pay down debt, repurchase stock, make acquisitions and focus on building its risk management and consulting businesses, according to analysts.

Buyers of MMC more aggressive, analysts note, although they disagree as to the likelihood of such a deal.

At the end of 2006, Putnam, which M&M acquired in 1970, had $192 billion in mutual fund and institutional assets under management, [illegible] of M&M's total revenues in 2006.

MMC has been under pressure lately to shore up its operations following a wave of regulatory and legal issues that have afflicted both Putnam and M&M's brokerage unit, Marsh Inc.

In 2003 and 2004, Putnam entered into agreements with U.S. Securities and Exchange Commission and state authorities in Massachusetts regarding investment short-term trading by former Putnam employees in Putnam mutual funds. Putnam paid a total

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Award Entries Due By July 6
See Page 3
TOP STORIES OF THE WEEK
Bush Opposition Leaves TRIA Extension In Doubt
The White House threw cold water on legislation providing a long-term extension of the Terrorism Risk Insurance Act, while small insurers voiced concern over mandatory coverage for all types of attacks. ▶Page 6
State Regulator Cleared For Private NAIC Sessions
In the first ruling of its kind, North Dakota's attorney general has upheld the legality of the nation's insurance regulators barring the public from certain meetings of their national association. ▶ Page 8
Katrina Battle Heats Up
The legal battle between a major insurer and a high-profile plaintiff attorney over Katrina claims expanded on three new fronts. ▶ Page 10
'Woman Of The Year' Offers Career Advice
AFIW's 2007 "Insurance Woman of the Year," H. Elizabeth Mitchell, president of Platinum Underwriters Re, shares some of the secrets of her success for those trying to make it in the industry. ▶ Page 30
Global Warming Puts The Heat On Directors & Officers
See Page 12
FRAUD REVIEW
Insurers Go Hi-Tech To Combat Crooks
ROGUE AGENTS!
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Insurers • Agents & Brokers • Reinsurers
D&O Heats Up
Climate change—a rapidly emerging insurance risk—has reached the world's boardrooms.
PAGE 24
A.M. Best's Exclusive Rankings: Reinsurers, Reinsurance Brokers—2006
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Leading U.S. Property/Casualty Writers by Line—2006
PAGE 31

THE INFORMED READER
A survey of insights from media around the world.

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June 3, 2007, 5:13 pm

What Insurers Should Do About Climate Change

Getty Images

Insurers are likely to soon take a leadership role in reducing the risks of climate change as companies become more liable for damage related to it. The authors of a study jointly published by the Stanford Environmental Law Journal and the Stanford Journal of International Law sketch out several ways that companies who disproportionately contribute to global warming could be held responsible for its damage as the science of global warming becomes clearer.

The most common example is owners of property damaged by a warmer world's extreme weather suing companies that disproportionately emitted greenhouse gases. As well as paying out on insurance covering such liability claims, insurers will have to pay for several kinds of damage related to global warming, the authors say. They'll have to pay for car crashes on wet roads and ski resorts that insure themselves against warm winters short on snow.

"The insurance industry, perhaps more than any other institution, has the power to set the stage for enduring and significant contributions to solving the problem of global climate change," say environmental consultant Christina Ross, government scientist Evan Mills and environmental-law expert Sean B. Hecht.

Liability Risks Are Also Associated with Responses *to* Climate Change

- Green buildings
- Nuclear power
- Renewable energy
- Hydrogen
- Carbon capture & storage
- Carbon offsets/trading
- Geo-engineering
- Adaptation projects

Comparative risk assessments needed

Risks & Responses

Impacts of climate change

Failure to adapt

Poor governance

Contract performance

Disinformation/fraud

Fiduciary

Political actions/disruptions

Public policy procrastination

Energy/carbon credit non-delivery

Risk transfer

Terms & conditions

Carbon management

Advisory services

Improved governance

Good citizenship

Green investments

Reducing Impacts ("Adaptation")

Loss prevention

- ***Tokio Marine Nichido:*** mangrove restoration

- ***IBHS:*** improved construction practices

- ***ABI:*** improved land-use planning

BASF Home - Patterson NJ

Risk Transfer; Terms & Conditions

Directors & Officers insurance

Swiss Re: "The Letter"

Zurich: D&O Side A coverage extension

Liberty Mutual: D&O Side A coverage extension

- Pollution defense-cost coverage
- Defense-cost coverage for global warming-related misrepresentations; and
- Defense-cost coverage associated with formal administrative or regulatory investigative proceedings

E.g. Native Village of Kivalina v. ExxonMobil Corp.

Risk Transfer

Political risk insurance for carbon credits

Zurich: coverage extension for carbon-credit projects, covering:

- Political risks and, in certain cases, the credit risks associated with operating in emerging markets
- Risk of a host government's actions that prevent an investor from receiving benefits associated with emission credits
- Political violence events, incl. war and terrorism, that disrupt operations

Risk Transfer

Green buildings insurance

- ***AIG Environmental:*** Sustain-a-Build environmental liability premium credit for green commercial buildings
- ***Allianz:*** Environmental liability provisions for architects, manufacturers, builders, auditors
- ***FFIC:*** Builders Risk coverage extension
- ***Lockton Risk Services:*** Liability insurance for home energy inspectors

Risk Transfer

Carbon offset delivery securitization

- ***Zurich:*** *CER/VER delivery securitization* - Target buyer is a multi-lateral or multi-national bank

- ***Swiss Re:*** *Kyoto-CDM risk insurance*

- ***Munich Re:*** similar

Terms & Conditions; Carbon Mg't

Industrial energy efficiency incentives

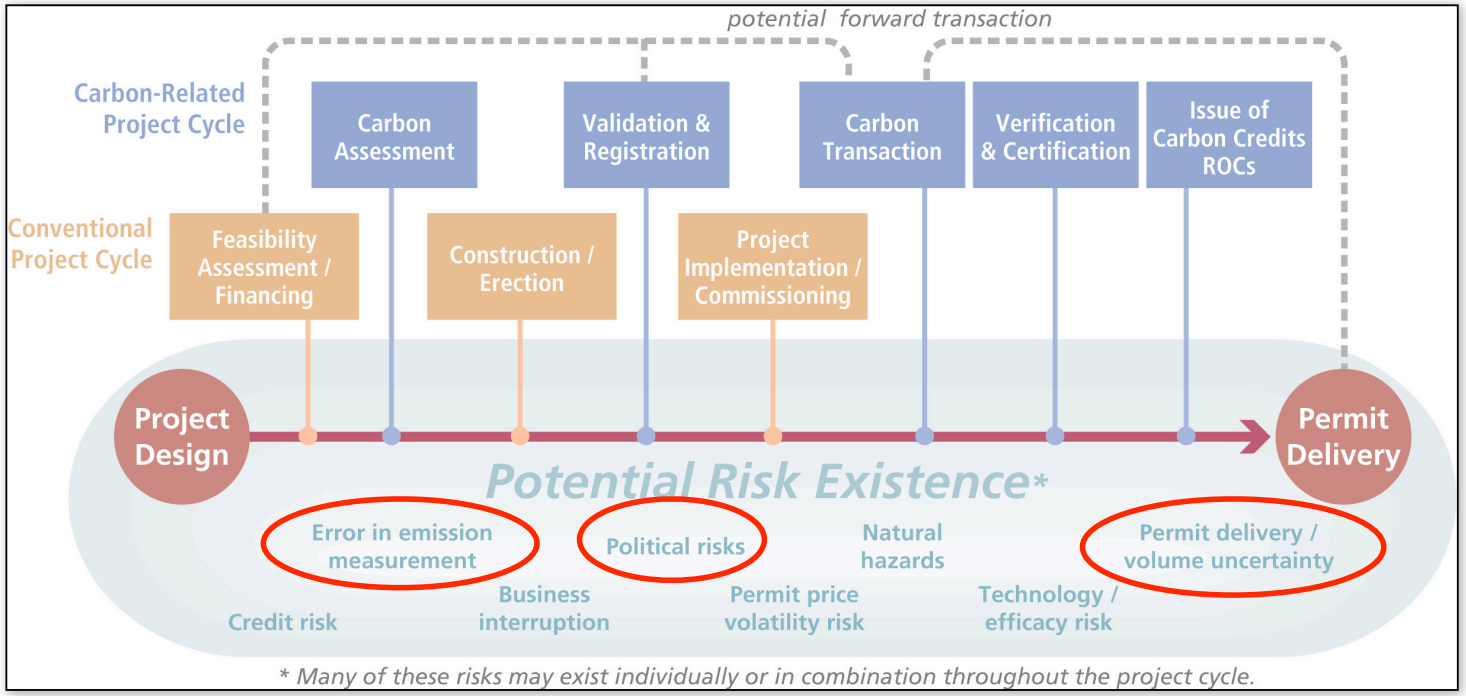
Allianz/FFIC **Premium reductions of up to 5%** via pricing credits or dividends on Workers Compensation, Property and General Liability coverages for manufacturers with sustainable processes or products, e.g.:

- Lean manufacturing - reducing material use and energy costs while also improving housekeeping reduces slips and fall injuries.
- Reductions in the use of flammable liquids - reduces carbon footprint since most flammables are petroleum based - also improves property safety and public/employee safety
- Newer, more energy efficient machinery - runs cooler (fewer fires) and has superior machine guarding (fewer injuries)

Advisory Services

Carbon offset projects

- ***AIG, Marsh, Zurich, others:*** offering carbon project risk-management consulting services; benchmarking, and insurance



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

Advisory Services

Climate regulation & liability advising

Insurers' Own Vulnerabilities

- Protecting shareholder value
  - Underwriting
  - Asset management
- Fostering mal-adaptation
  - e.g. Comer v. Murphy Oil USA claim
- Enabling carbon-intensive industries
- Emerging technologies
- Conflict of interest with insureds
- Emissions from own operations

Improved Governance

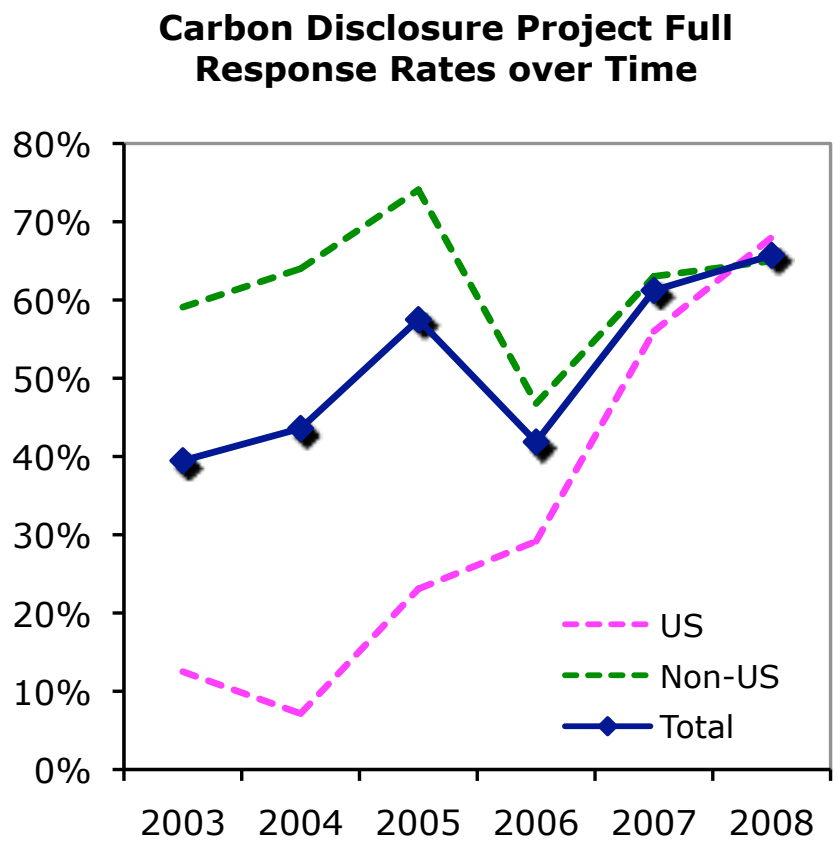
Carbon-risk disclosure

Carbon Disclosure Project: Annual Global Survey by Institutional Investors ($57 Trillion under management)

110 Insurers surveyed: 2003-2008:

AIG, Allstate, Aon, Chubb, Marsh, MBIA, Safeco, St. Paul Travelers, Unum Provident, Munich Re, many others...

AIG Investments is among the sponsors

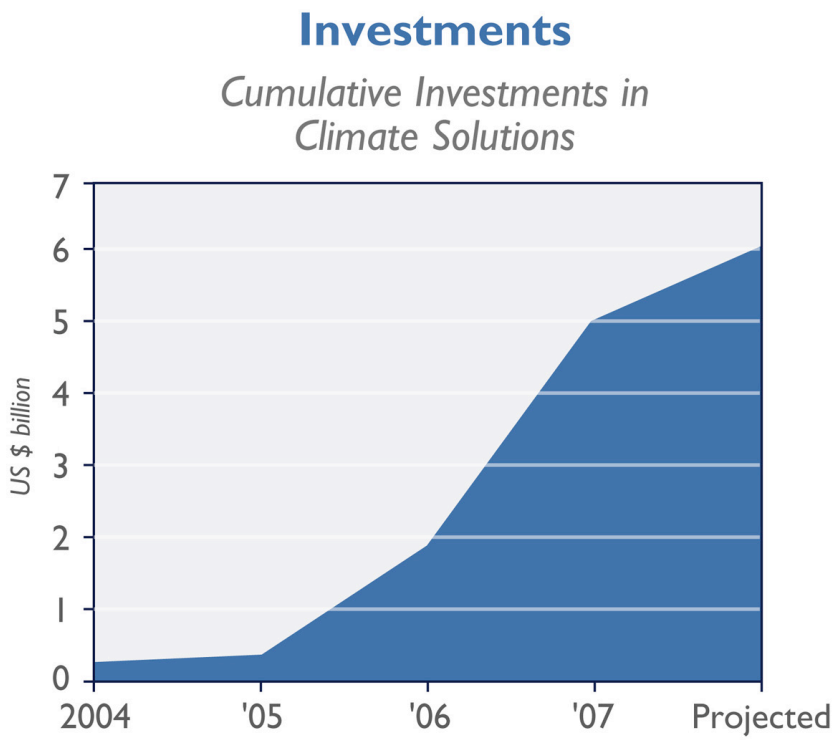


Source: http://www.cdproject.net/

Improved Governance

Climate-friendly investments

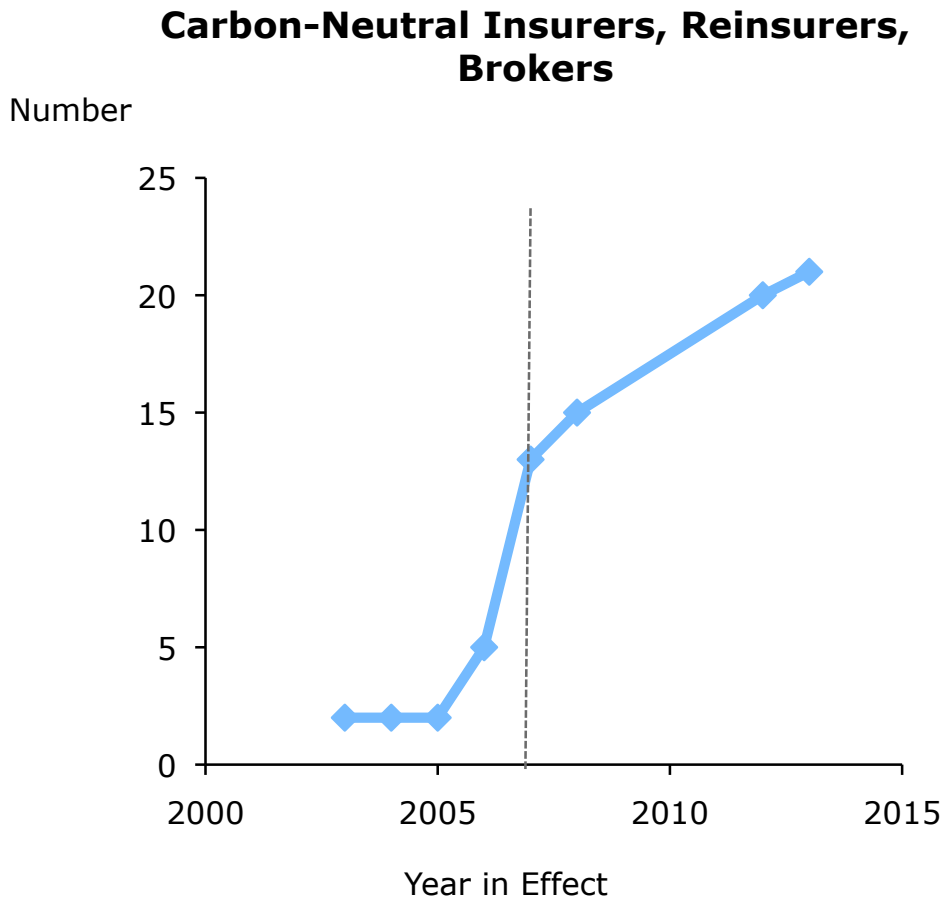
- ***Allianz:*** $15 million in the European Carbon Fund; plans to invest between $400 and $650 million in renewable energy
- ***Gerling:*** Sustainable Development Project operates a $100 million venture capital fund
- ***ING:*** Green finance - $1.16 billion
- ***Sompo Japan:*** $100 million green fund
- ***Swiss Re:*** $429 million "clean energy" venture fund; $320 million in individual investments



Improved Governance

Carbon-neutrality

- *AIG*
- *Aviva*
- *Bradford & Bingley*
- *Folksam*
- *Fortis*
- *FP Marine*
- *HSBC*
- *Independent Insurance Services*
- *ING*
- *Insurance Australia Group*
- *Munich Re*
- *Royal & Sun Alliance*
- *Rutherfoord*
- *Solar Group*
- *Specialized Broking Associates*
- *Storebrand*
- *Swiss Re*
- *Tokio Marine Nichido*
- *Xelector*



Good Citizenship

Engagement in public policy

- U.S. Climate Action Partnership
- ClimateWise
- UNEP-FI

Take-aways

- Climate-liability risks can be managed
- Climate *responses* will bring new liability risks
- Loss prevention benefits could be better conveyed to customers; coverage gaps remain
- Insurers have *own* liabilities

http://insurance.lbl.gov
emills@lbl.gov