Predicting Disaster, Managing Losses

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Finance, Environment and Sustainable Development
Corporate Responsibility and Capital Markets
Managing Qualitative Risk Issues
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Contents

– Loss trends
– Changing risks
– Tasks (homework)
– Environment and sustainability
Finance, Environment and Sustainable Development

Paris, 10th January 2003
Great natural catastrophes 1950–2001

Economic losses (2001 values)

of which insured losses (2001 values)

Trend of economic losses

Trend of insured losses

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## Great Weather Disasters 1950 - 2001

### Decade comparison

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number</strong></td>
<td>13</td>
<td>16</td>
<td>29</td>
<td>44</td>
<td>72</td>
<td>64</td>
<td>4.0</td>
</tr>
<tr>
<td><strong>Economic losses</strong></td>
<td>41.2</td>
<td>54.1</td>
<td>79.4</td>
<td>126.1</td>
<td>425.4</td>
<td>362.0</td>
<td>6.7</td>
</tr>
<tr>
<td><strong>Insured losses</strong></td>
<td>-</td>
<td>7.2</td>
<td>11.5</td>
<td>23.0</td>
<td>98.9</td>
<td>79.3</td>
<td>11.0</td>
</tr>
</tbody>
</table>

Losses in US$ billion - 2001 values

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The heat is on
The present problems will be strongly aggravated if the climatic change predictions come true.

Increase in:
- greenhouse gases
- temperature air/sea
- humidity
- sea level

Another problem:
- ozone "hole"

Additional problems:
- windstorms/storm surges
- thunderstorms/hailstorms
- rainstorms/floods
- crop hazards
- skin cancer
- biosphere damage
More extreme events in a warmer climate

Example: heat waves
A few recent weather related disasters

**Selected events** (focus France, Germany)

<table>
<thead>
<tr>
<th>Region</th>
<th>Event</th>
<th>Date</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>France (N)</td>
<td>Rain, Floods</td>
<td>April/May 2001</td>
<td>worst since 1926</td>
</tr>
<tr>
<td>Germany</td>
<td>Severe storms</td>
<td>May</td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>Severe storms</td>
<td>July 2002</td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>Rain, Floods</td>
<td>August 2002</td>
<td></td>
</tr>
<tr>
<td>Austria</td>
<td>Rain, Floods</td>
<td>August 2002</td>
<td></td>
</tr>
<tr>
<td>Czech Rep.</td>
<td>Rain, Floods</td>
<td>August 2002</td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td>Rain, floods</td>
<td>March/Ap. 2002</td>
<td></td>
</tr>
<tr>
<td>France (S)</td>
<td>Rain, Floods</td>
<td>September 2002</td>
<td></td>
</tr>
<tr>
<td>France, Germany</td>
<td>Windstorm Jeanett</td>
<td>October 2002</td>
<td></td>
</tr>
<tr>
<td>France, Europe</td>
<td>Storm, Rain, Floods</td>
<td>January 2003</td>
<td>widespread over Europe</td>
</tr>
</tbody>
</table>

Events started to become more extreme!
To Do
Computer techniques

Overlaying and calculating

- buildings
- values
- land use
- storm tracks
- flood levels
- sums insured
- etc.
## Loss Potentials of Selected Natural Disaster Scenarios

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Return period (1x in .... years)</th>
<th>Economic loss (US$ bn)</th>
<th>Insured loss (US$ bn)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windstorm USA</td>
<td>100</td>
<td>80</td>
<td>40</td>
</tr>
<tr>
<td>Earthquake USA</td>
<td>100</td>
<td>50</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>1000</td>
<td>200</td>
<td>80</td>
</tr>
<tr>
<td>Windstorm Europe</td>
<td>100</td>
<td>30</td>
<td>20</td>
</tr>
<tr>
<td>Windstorm Japan</td>
<td>100</td>
<td>25</td>
<td>20</td>
</tr>
<tr>
<td>Earthquake Japan</td>
<td>100</td>
<td>100</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>1000</td>
<td>2000</td>
<td>50</td>
</tr>
</tbody>
</table>
Insurance Tools

- Adequate pricing
- Substantial deductibles, based on the respective exposure
- Loss prevention
- Accumulation control

- Improved claims settlement
- Reinsurance, retrocession
- Liability limits
- Exclusion of certain hazards
- Exclusion of particularly exposed areas
Vision  Guiding principles  Goals

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By constantly strengthening reinsurance business as a key group activity, we actively help to shape the future of the Munich Re Group.

Our independence is assured by the quality of our services and strategies.

We concern ourselves with today's great challenges – population growth, reducing resources, environmental pollution, climate change. From our knowledge of risk, we are competent to adopt positions on issues affecting society.

We think and act globally. We assume, manage and finance risks worldwide. By so doing, we contribute to social, economic and technological progress.

→ continue
Meet the Expectations of the Stakeholders

- Shareholders
- Clients
- Rating Agencies
- Public Interest, Reputation
- Employees
Environmental Issues and Sustainability
Important tasks (homework)

- **Loss potentials analyses** (incl. trends)
- **Insurance tools** (e.g. adequate premiums)
- **Asset Management** (DJSI, FTSE4Good etc.)
- **Housekeeping** (Certification etc.)
- **Real Estate Management**
- **Education**
Kyoto Protocol Support
Insuring the Mechanisms

Products can include:

- Business Interruptions
- Forest-/Agriculture projects (CO$_2$ sinks, yield)
- Buffer Insolvencies etc. (credit insurance, surety bonds etc.)
- Projects Financing (more an issue for banks)
- Others (Consulting, Trading, CO$_2$ Banking etc.)

What we need:

=> long-term political certainty on regulations (political risks)
=> clear values for GHG emission reductions (business plans)
=> active CDM-, JI-, ET World (spread portfolios)
=> strong rules and regulations (=> compliance regime)
=> good global consensus is an important prerequisite!
Thank you – questions ??