Emerging Risks

CAS Spring meeting
May 20, 2019 3:20-4:35 pm
Max J. Rudolph, FSA CFA CERA MAAA

Survey of Emerging Risks

- Annually since 2008
- Sponsored by Joint Risk Management Section
  - Canadian Institute of Actuaries (French translation)
  - Casualty Actuarial Society
  - Society of Actuaries
- Mix of quantitative and qualitative
- Expect full report to be released in late summer

Survey of Emerging Risks
5 Categories

- Economic
- Environmental
- Geopolitical
- Societal
- Technological
Survey of Emerging Risks
23 Risks (Slide 1 of 2)

Economic
• Energy price shock
• Currency shock
• Chinese destabilization
• Asset price collapse
• Financial volatility

Environmental
• Climate change
• Freshwater loss
• Tropical storms
• Earthquakes
• Severe weather

Survey of Emerging Risks
23 Risks (Slide 2 of 2)

Geopolitical
• Terrorism
• Weapons of mass destruction
• Interstate/civil wars
• Failed and failing states
• Transnational crime
• Globalization shift
• Regional instability

Societal
• Pandemics
• Chronic diseases
• Demographic shift
• Liability regimes/regulations

Technological
• Cyber
• Technology

Questions Asked

• Current risk
• Top 5 emerging risks
• Top emerging risk
• Emerging risk combinations
Climate Change

Cyber concerns continue (top 5 emerging)

Geopolitical risks strengthen
Top Current Risks

- Climate change (12%)
- Cyber/network infrastructure (12%)
- Financial volatility (11%)
- Asset price collapse (8%)
- Technology (7%)

Top (5) Emerging Risks Over Time

<table>
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<th>Year</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
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<td>1</td>
<td>Cyber/network infrastructure</td>
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<td>Terrorism</td>
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<td>Technology</td>
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<td>Technology</td>
<td>Regional instability</td>
<td>Demographic shift</td>
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<td>Regional instability</td>
<td>Regional instability</td>
<td>Financial volatility</td>
<td>Financial volatility</td>
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</tr>
</tbody>
</table>

Top Emerging Risks

- Climate change (22%)
- Cyber/network infrastructure (15%)
- Technology (13%)
- Financial volatility (5%)
- Demographic shift (5%)
### Top Risks in Combination

- Climate change (11%)
- Cyber/network infrastructure (9%)
- Financial volatility (8%)
- Asset price collapse (7%)
- Technology (7%)

### Changes from prior year

![Chart showing changes from prior year in top risks]

### Extended time horizon – 2050

![Chart showing emerging risks over a long time horizon]

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5/28/2019
Polling Question

• Which risk are you most worried about?
  • Energy price shock
  • Currency shock
  • Natural catastrophes: tropical storms
  • Natural catastrophes: earthquakes
  • Chronic diseases

Polling Question

• Which risk is least likely to impact humanity?
  • Climate change
  • Demographic shift
  • Loss of freshwater services
  • Pandemics/infectious diseases
Global GDP Growth Scenarios

![Graph of Global GDP Growth Scenarios]

Unexpected Outcomes

![Graph of Global Land and Ocean Temperature Anomalies]

![Graph of Tornado Environment Frequency Trends]
To access surveys/articles

https://www.soa.org/research-reports/2019/research-emerging-risks-survey-reports/
Articles based on the Survey of Emerging Risks
SOA blog for Canadian members
ERM practitioners’ advice for the next generation
https://www.soa.org/Files/Research/Projects/erm-lessons-master.pdf
How a risk team adds value
https://blog.soa.org/2019/02/22/how-a-risk-team-adds-value/

Thank you!
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