



9<sup>th</sup> Annual Emerging Risk Survey  
 ERM Symposium  
 Session C1  
 April 7, 2016

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### What are Emerging Risks

- Evolving risks (creeping, mean reverting)
  - Climate change
  - Crop disease (e.g., wheat rust)
  - Antibiotics overuse leads to ineffectiveness
  - Geopolitical concerns
- Tail risk/outliers (recently unseen)
  - Disease/Spillover
  - Earthquake (e.g., Haiti)
  - Asteroid/supervolcano



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### Rumsfeld's Unknown Unknowns

- Known/known – historical data, auto
- Unknown/unknown – ?
- Known/unknown – south Florida flood risk
- Unknown/known – auto (distracted driver, driverless car), mortality (obesity or cancer cure)
  - *It ain't what you don't know that gets you into trouble. It's what you know for sure that just ain't so.*

Mark Twain



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## Emerging Risks

- May be internally or externally generated
  - Higher order thinking (e.g., oil spill/tourism)
  - Outcome unclear (e.g., drones/flying cars, genetically modified food)
  - *Environmental scan, internal survey, external workshops, stress testing*
- Next big risk is likely to be something new
- Time horizon – 10+ years
- Unintended consequences



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## Survey

- Annual survey since 2008
- Emerging risks (23)
  - Originally from World Economic Forum
- Top 5 emerging risks (including #1)



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## Emerging Risks

<ul style="list-style-type: none"><li>• Economic<ul style="list-style-type: none"><li>• Energy price shock</li><li>• Currency shock</li><li>• Chinese economic hard landing</li><li>• Asset price collapse</li><li>• Financial volatility</li></ul></li></ul>	<ul style="list-style-type: none"><li>• Environmental<ul style="list-style-type: none"><li>• Climate change/space weather</li><li>• Freshwater loss</li><li>• Tropical storms</li><li>• Earthquakes</li><li>• Severe weather</li></ul></li></ul>
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## Emerging Risks

- Geopolitical
  - Terrorism
  - Weapons of mass destruction
  - Interstate/civil wars
  - Failed and failing states
  - Transnational crime
  - Globalization fallback
  - Regional instability
- Societal
  - Pandemics
  - Chronic diseases
  - Demographic shift
  - Liability regimes/regulations
- Technological
  - Cyber security
  - Technology



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## Anchoring – Behavioral Finance

- April 2008
  - 57% Oil price shock
  - 40% Climate change
  - 40% Blow up in asset prices
- October 2015
  - 65% Cyber security/ Infrastructure
  - 45% Financial volatility
  - 37% Terrorism
  - 31% Asset price collapse
  - 26% Regional instability



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## Interesting Revelations 2015

- Cyber now top current AND emerging risk
- Geopolitical concerns fell
- Environmental/Economic concerns are slightly up
- Increasing formal identification of emerging risks
- Two-tiered approach using heat map to filter
  - Red/yellow receive much more attention than green
  - Some emerging risks evolve – managed/unimportant



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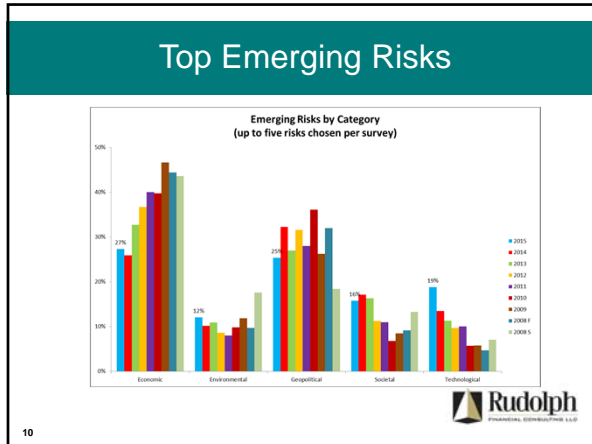
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### Trending the Top Risks

Year	2012	2013	2014	2015
1	Financial volatility	Financial volatility	Cybersecurity / interconnectedness of infrastructure	Cybersecurity / interconnectedness of infrastructure
2	Regional instability	Cybersecurity / interconnectedness of infrastructure	Financial volatility	Financial volatility
3	Cybersecurity / interconnectedness of infrastructure	Asset Price Collapse	Terrorism	Terrorism
4	Failed and failing states	Demographic shift	Regional instability	Asset Price Collapse

**Rudolph**  
FUNDATIONS, CONSULTING & LLP

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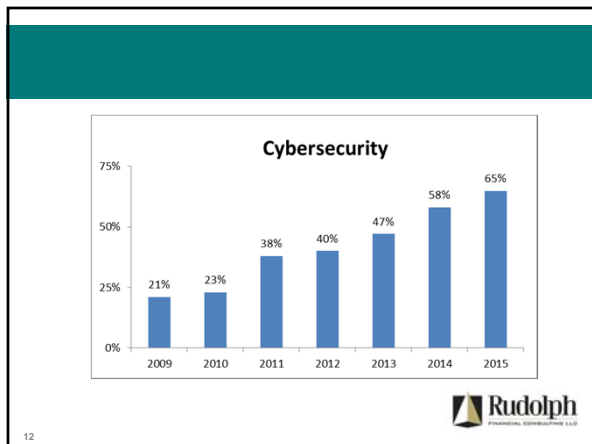
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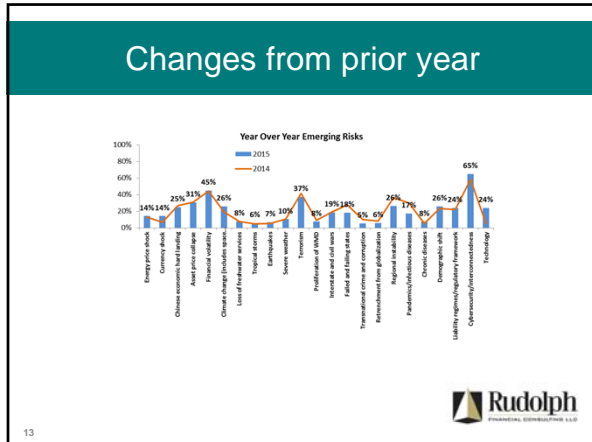
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- ### Is ERM Working? NO
- ERM is a way for a company to "feel good"
  - ERM gives a false sense of security
  - Bureaucratic / compliance driven (check the box)
  - Risk team isolated from decision makers, no contrarians
  - Positive results are more important than the process
  - Assumes current scenario is worst case
  - Analogy: reduces likelihood of fender-bender, but not likelihood of a serious collision
  - **CULTURE!**
- Rudolph**  
PROFESSIONAL CORPORATION

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- ### Is ERM Working? YES
- Decision makers are engaged
  - Risks are more transparent with holistic analysis
  - Improved understanding of exposures and interactions
  - Risk/return tradeoffs considered
  - Multiple perspectives encouraged
  - Qualitative and quantitative analysis
  - Aligns with strategic planning
  - Made decision-making more fact-based; improves strategic planning
- Rudolph**  
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## Qualitative/Quantitative

- Qualitative analysis provides the backbone of management decision making.
- Prior beliefs can be challenged
- We all respond better when there are metrics measuring what we do.
- Qualitative analysis is a stopgap
- Increased requirements to at least think about risk has led to better feedback loop
- Separating emotion from decision making



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## Recommendations – baby steps

- Culture
- Communications
- Buy-in from at least one champion
- Iteratively move forward
- Involve the business units, multiple views
- Each company is unique
- *Go back more than 20 years for scenarios*
- *“It is better to be vaguely right than exactly wrong”*



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## To access surveys/articles

<http://www.soa.org/Research/Research-Projects/Risk-Management/research-emerging-risks-survey-reports.aspx>



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Thank you!  
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  - SOA Board of Governors
  - SOA President's Award
  - Past Chair, Investment Section
- Affiliated with
  - Risk Assessment Partners
  - Hanover Stone Solutions

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