



Enterprise  
Risk Management  
Symposium



## **RED 1.2 & 2.3: Emerging Risks**

### **Moderator:**

Max J. Rudolph, FSA, CERA, MAAA

### **Presenters:**

Max J. Rudolph, FSA, CERA, MAAA

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## Emerging Risks

April 20, 2017 Session 1.2 at 11:25 am

April 21, 2017 Session 2.3 at 11:20 am

Max Rudolph, FSA CFA CERA



# 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 (opioids, obesity, 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*

# 10<sup>th</sup> Survey of Emerging Risks

- Economic
  - Energy price shock
  - Currency shock
  - Chinese economic hard landing
  - Asset price collapse
  - Financial volatility
- Environmental
  - Climate change/space weather
  - Freshwater loss
  - Tropical storms
  - Earthquakes
  - Severe weather

# Emerging Risk Categories

- 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

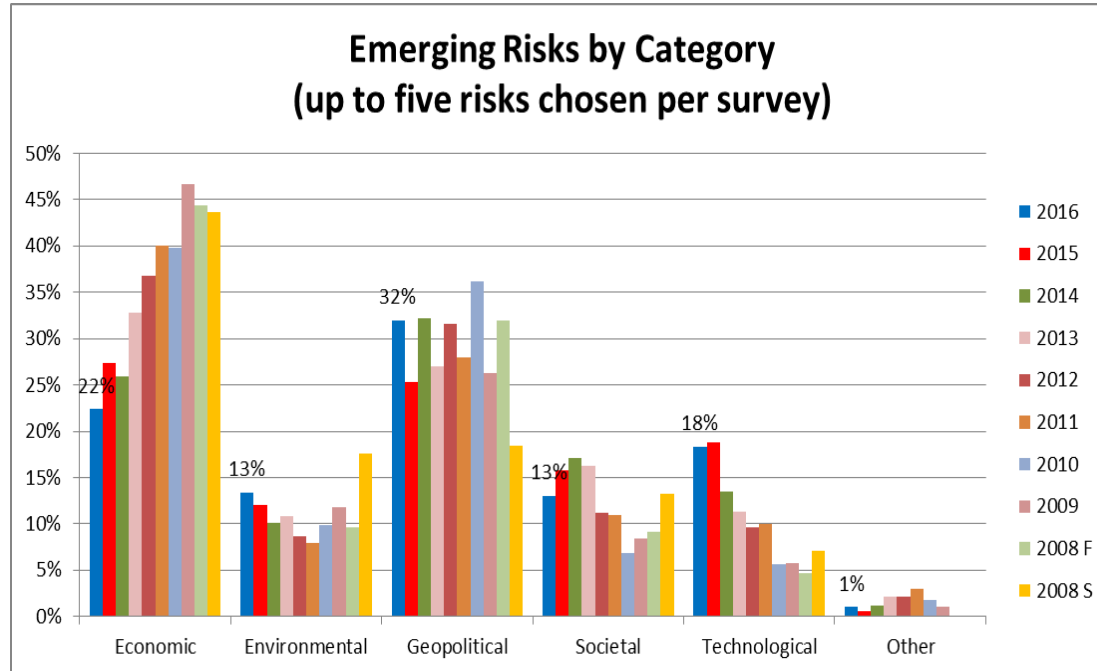
# Cognitive Bias - Anchoring

- April 2008
  - 57% Oil price shock
  - 40% Climate change
  - 40% Blow up in asset prices
- November 2016
  - 54% Cyber/infrastructure
  - 44% Financial volatility
  - 40% Terrorism
  - 34% Technology
  - 31% Retrenchment from globalization

# Interesting Revelations 2016

- Cyber slowed its increase (2nd current risk, top emerging risk)
- Geopolitical concerns rose
- Environmental concerns up/Societal down
- 94% have input to a strategic opportunity
- Risks up 5%
  - Retrenchment of globalization
    - Populist comments/concerns
  - Transnational crime and corruption
  - Technology
- Risks down 5%
  - Liability regime/regulatory framework
  - Chinese economic hard landing
  - Asset price collapse
  - Cyber/interconnectedness of infrastructure

# Top Emerging Risks

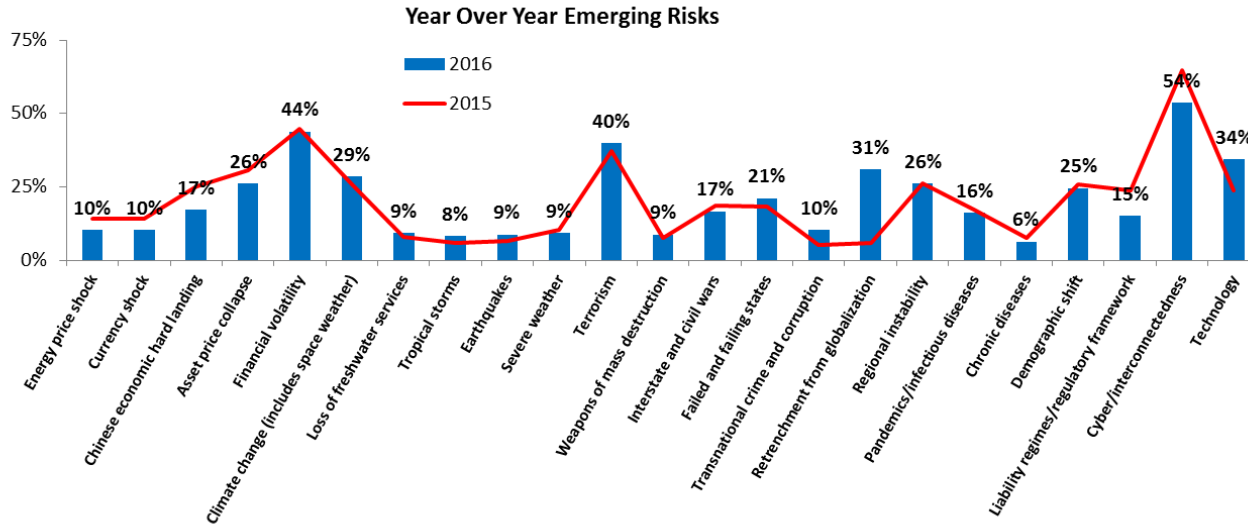




# Trending the Top Risks

Year	2013	2014	2015	2016
1	Financial volatility	Cybersecurity / interconnectedness of infrastructure	Cybersecurity / interconnectedness of infrastructure	Cyber / interconnectedness of infrastructure
2	Cybersecurity / interconnectedness of infrastructure	Financial volatility	Financial volatility	Financial volatility
3	Asset Price Collapse	Terrorism	Terrorism	Terrorism
4	Demographic shift	Regional instability	Asset Price Collapse	Technology

# Changes from prior year



# To access surveys/articles

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

# Thank you!

## Max J. Rudolph, FSA CFA CERA



[max.rudolph@rudolph-financial.com](mailto:max.rudolph@rudolph-financial.com)

Twitter @maxrudolph  
Omaha, Nebraska, USA  
(402) 895-0829

- Rudolph Financial Consulting, LLC
  - ERM/ALM strategist
  - ORSA consultant
  - Private investor/researcher
  - Adjunct Professor, Creighton University
- Professionalism
  - SOA Board of Governors 2004-2007
  - SOA President's Award
  - Past Chair, Investment Section
  - Past Chair, ERM Symposium
  - ASB ERM Committee (ASOPs 46/47, capital assessment)
- Affiliated with
  - Hanover Stone Solutions

