



Emerging Risks
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What are Emerging Risks

- Evolving risks (creeping, mean reverting)
 - Climate change
 - Crop disease (e.g., wheat rust)
- Tail risk/outliers (recently unseen)
 - Earthquake (e.g., Haiti)
 - Asteroid
 - Disease
 - MERS
 - Plague
 - Smallpox

Rumsfeld's Unknown Unknowns

- Known/known – historical data, auto
- Unknown/unknown – ?
- Known/unknown – Napa fault line
- Unknown/known – improper pricing, mortality
 - 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



Emerging Risks

- May be internally or externally generated
 - Higher order impact/interaction (e.g., oil spill/tourism)
 - Outcome unclear (e.g., drones, driverless 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

Topics

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

Emerging Risks

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

Emerging Risks

- Geopolitical
 - International 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 / Space weather

Current Environment Matters

April 2008

- Oil price \$114/bbl WTI
- S&P 500 1,386
- Currency 1.56 \$/Euro

November 2008

- Oil price \$68
- S&P 500 969
- Currency 1.27 \$/Euro

Fall 2014

- Oil price \$91
- S&P 500 1,972
- Currency 1.26 \$/Euro

Oct 2015 (est)

- Oil price \$45
- S&P 500 2,070
- Currency 1.10 \$/Euro

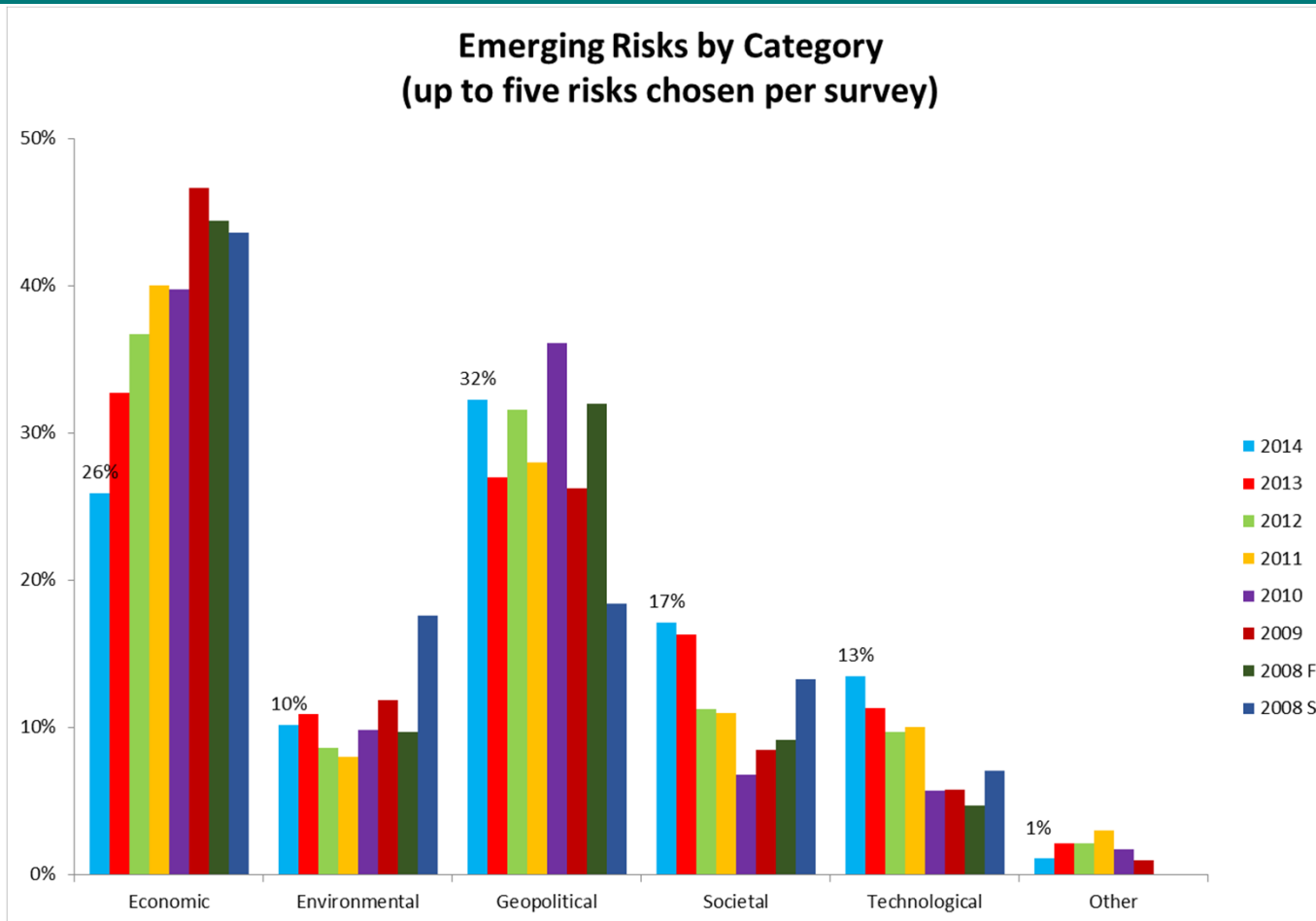
Anchoring – Behavioral Finance

- April 2008
 - 57% Oil price shock
 - 40% Climate change
 - 40% Blow up in asset prices
- October 2014
 - 58% Cyber security/ Infrastructure
 - 44% Financial volatility
 - 41% International terrorism
 - 37% Regional instability
 - 31% Asset price collapse

Interesting Revelations 2014

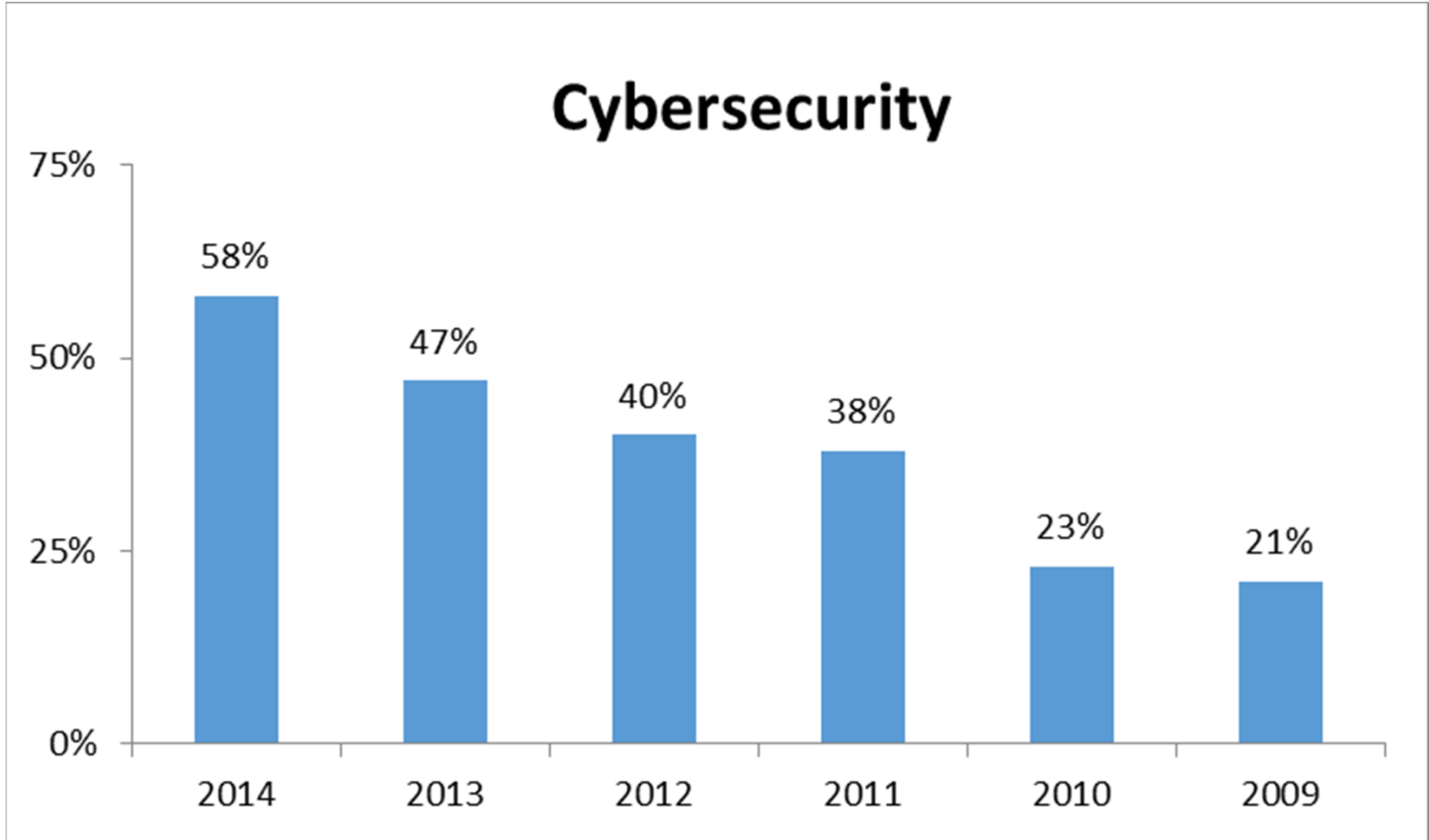
- Cyber now top risk
- Economic concerns fell
- Geopolitical concerns are up
- Moving toward using leading indicators
- Finding role within strategic team

Top Emerging Risks

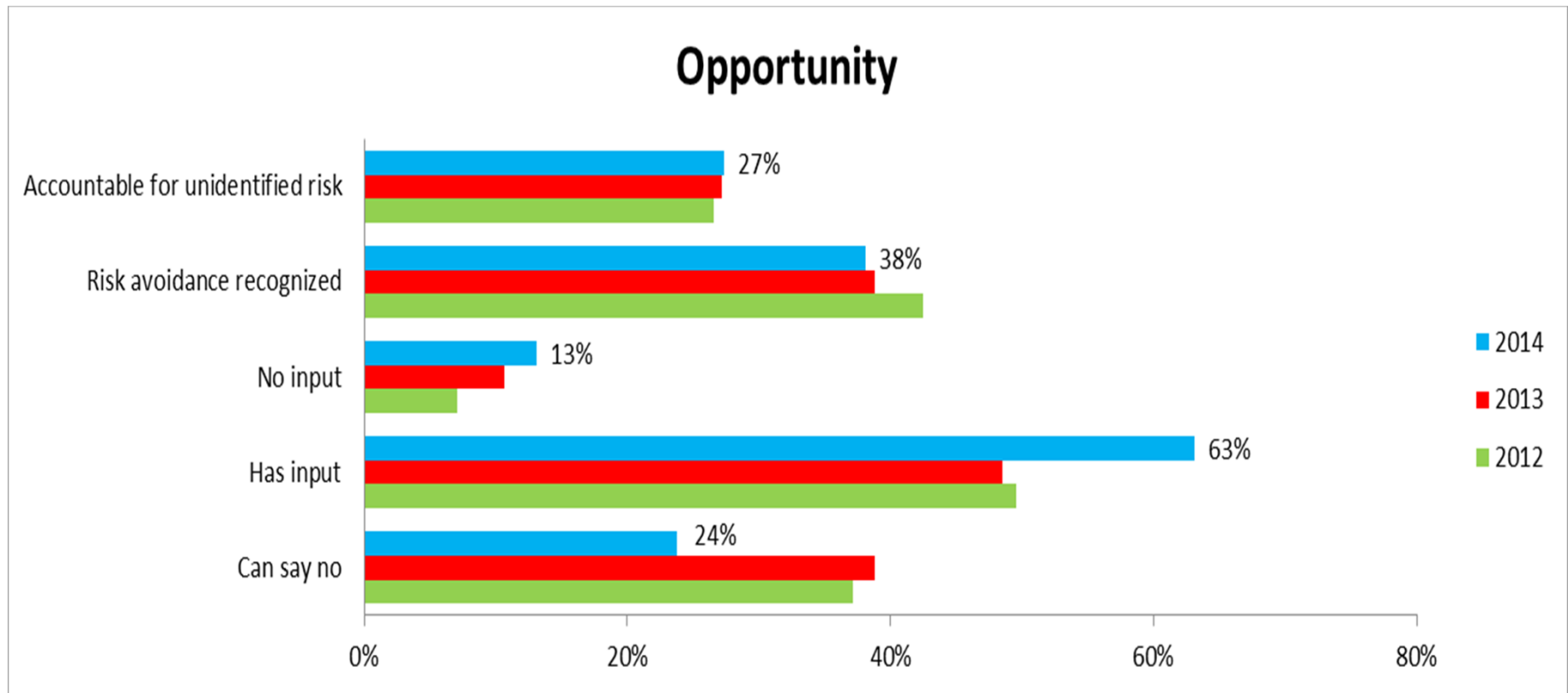


Trending the Top Risks

Year	2011	2012	2013	2014
1	Financial volatility	Financial volatility	Financial volatility	Cybersecurity / interconnectedness of infrastructure
2	Failed and failing states	Regional instability	Cybersecurity / interconnectedness of infrastructure	Financial volatility
3	Cybersecurity / interconnectedness of infrastructure	Cybersecurity / interconnectedness of infrastructure	Blow up in asset prices	International terrorism
4	Chinese economic hard landing	Failed and failing states	Demographic shift	Regional instability



Risk Opportunities



Is ERM Working? NO

- ERM is a way for a company to "feel good"
- ERM gives a false sense of security
- Illusion: activity without substance (not relied on)
- Bureaucratic / compliance driven
- Overload - risk manager freezes up
- Analogy: reduces likelihood of fender-bender, but not likelihood of a serious collision
- **CULTURE!**

Is ERM Working? YES

- Decision makers are engaged
- Risks are more transparent
- Greater awareness of potential risks
- Improved understanding of exposures
- Risk/return tradeoffs considered
- Better industry risk management allows more realistic pricing
- Best practices incorporate strategic planning
- Made decision-making more fact-based; enabled better goal-setting.

Qualitative/Quantitative

- *A poor quantification trumps a strong qualitative discussion.*
- *Qualitative analysis provides the backbone of management decision making.*
- *In almost all cases there is some measure of both. Quantification requires an initial qualitative assessment of how the risk will manifest and the associated impact; otherwise, there is nothing to quantify.*
- *What is our advantage as risk managers?*

To access surveys/articles

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

Thank you!

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