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Making Sense of the Trends:

The 10th Survey of Emerging Risks helps actuaries look forward with clarity

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Sidebar - 10th Survey!

The Survey of Emerging Risks was first conducted in the spring of 2008, as Bear Stearns ceased independence, and again in fall 2008, as Lehman Brothers followed suit. All of the remaining surveys were conducted annually in the fall, creating a living document of emerging risks as the enterprise risk management (ERM) field has grown and evolved. The survey asks open-ended questions about key risk indicators and general ERM topics to aid practitioners as they implement and improve an ERM framework.

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

Actuaries often are accused of creating a process where we drive a car using only the rearview mirror to observe our surroundings. Jokes about driverless cars notwithstanding, one of the hardest parts of projecting the future is figuring out when historical data is no longer predictive. While unknown unknowns (thanks to Donald Rumsfeld) have led to the study of Black Swans (Nassim Taleb[1]) and Gray Rhinos (Michele Wucker[2]), unknown knowns typically become a battleground where politics and forward thinkers skirmish. Awareness of emerging risks, and anticipating their positive and negative effects, gives risk managers a head start in developing mitigation strategies.

Some risks evolve slowly over time, requiring statistical techniques to extrapolate based on recent trends. This might include flood risk due to climate change, or auto insurance as seat belt usage became prevalent. Some risks occur infrequently, allowing practitioners to make a bet to ignore tail events like pandemics and extreme earthquakes. When risks shift, prior data is harmful if used to describe the future. Insurance risks related to driverless cars, cyberattacks, severe hurricanes and opioid use fall in this category. While evolving risks sometimes occur slow enough for adaptation, those that move quickly increase solvency risk and could be systemic. Risk managers who seek out emerging risks and develop contingency plans increase firm resiliency.

[1] Taleb, Nassim. *The Black Swan*. New York: Random House, 2007.
[2] Wucker, Michele. *The Gray Rhino*. New York: St. Martin's Press, 2016.

10th Survey

The Survey of Emerging Risks[3] tracks the trends of thoughts of risk managers across time. The results presented here are from the 10th survey.[4] Responses were received primarily from North American actuaries involved with risk management, although some also were received from risk managers working in government and other industries across the globe Trends are as important as absolute responses, helping risk managers contemplate individual risks, combinations of risks, and unintended consequences of actions and inactions.

Past highlights of the surveys include recency bias, the increasing importance of cyber risks, and the prominence of risk culture in long-term results. This year is no different. The rise of populism in developed countries resulted in the Brexit vote, where United Kingdom voters expressed a desire to leave the European Union, and the election of Donald Trump as president of the United States. The survey's timing, just weeks after the 2016 American national election, reflects this as seen by increases in the *retrenchment from globalization* risk across questions about current and emerging risks. One trend recognized this year is the prevalence for geopolitical risks to have higher responses in even numbered years corresponding to the American election cycle.

Risk management practices continue to evolve. The year 2016 saw limited geopolitical risk breakouts, but the Middle East, Venezuela, Ukraine and North Korea all remain hot zones. Hackers have become a constant threat, but the public quickly is lulled into complacency until a shock occurs. A lack of natural disasters in the United States had lulled some into complacency prior to Hurricanes Harvey, Irma, Maria and Nate. This year's Survey of Emerging Risks, the 10th in the series, attempts to capture these trends.

In addition to the top five and top emerging risks, the survey also looks at the top current risk and risk combinations.

Top Five Emerging Risks

The survey combines 23 individual risks into five categories—economic, environmental, geopolitical, societal and technological. See sidebar for more details. In the primary survey question, respondents were asked to choose up to five emerging risks. The geopolitical category of risks gained ground (Figure 1 shows percentages from the current survey for each category), reclaiming the top category as the economic and societal categories dropped from the previous survey. The economic category has trended lower as we move further from the global financial crisis, and the technological category has grown as cyber risks and other technologies receive more attention from risk managers.

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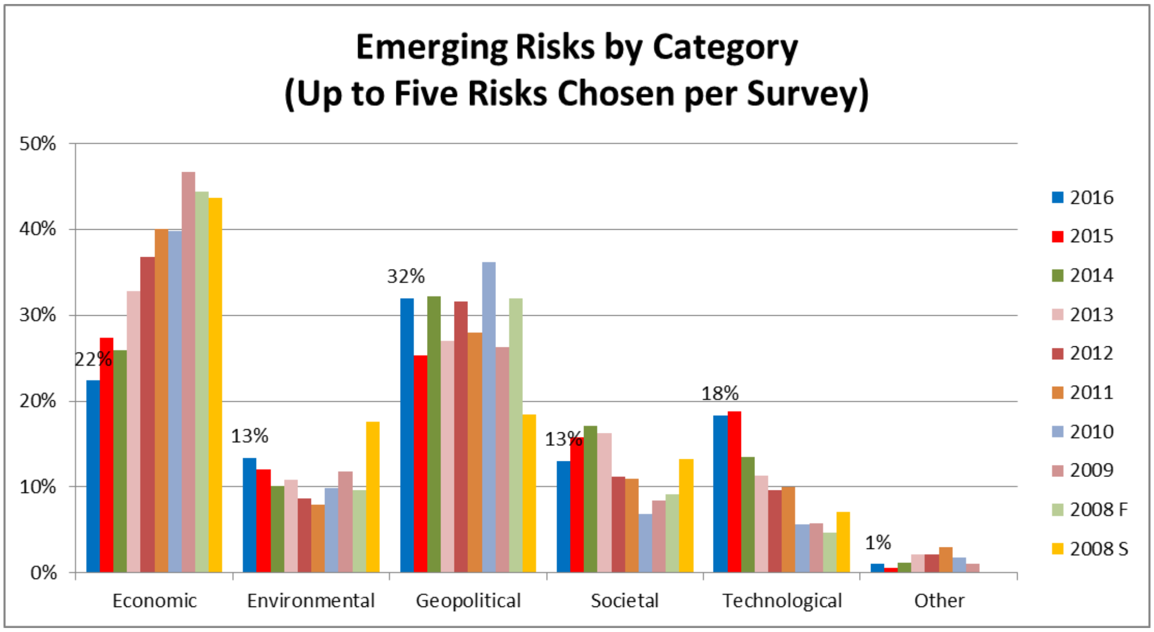
[3] All articles and reports associated with the surveys can be found at https://www.soa.org/research-reports/2015/research-emerging-risks-survey-reports/.

[4] The survey is sponsored by the Joint Risk Management Section, a collaboration of the Canadian Institute of Actuaries (CIA), Casualty Actuarial Society (CAS) and Society of Actuaries (SOA).

Figure 1: Emerging Risks by Category (Up to Five Risks Chosen Per Survey)



Source: Survey of Emerging Risks, 2008–2016.

Cyber continued in its position at the top of the list of emerging risks. But for the first time since its entry as a risk in 2009, it did not rise, falling from 65 percent to 54 percent of respondents.

The uppermost choices (in the top five) in the geopolitical category were *terrorism* (40 percent of respondents choosing it in their top five) and *retrenchment from globalization* (up from 6 percent to 31 percent). Risks with new highs across the survey history were *climate change*, *natural catastrophe:* earthquakes, *retrenchment from globalization* and *technology*. A new low was recorded by the *Chinese economic hard landing* risk for the sixth consecutive year. Risk managers must adapt rapidly in this quickly changing environment.

The evolution of the top five risks chosen provides evidence that trends can be relied on in this survey, and the general continuity between survey iterations adds credibility. In this survey, *financial volatility* has overtaken *cyber* as the top current risk, but *cyber* remains the top emerging risk both when choosing five or the single top risk. See **Figure 2**.

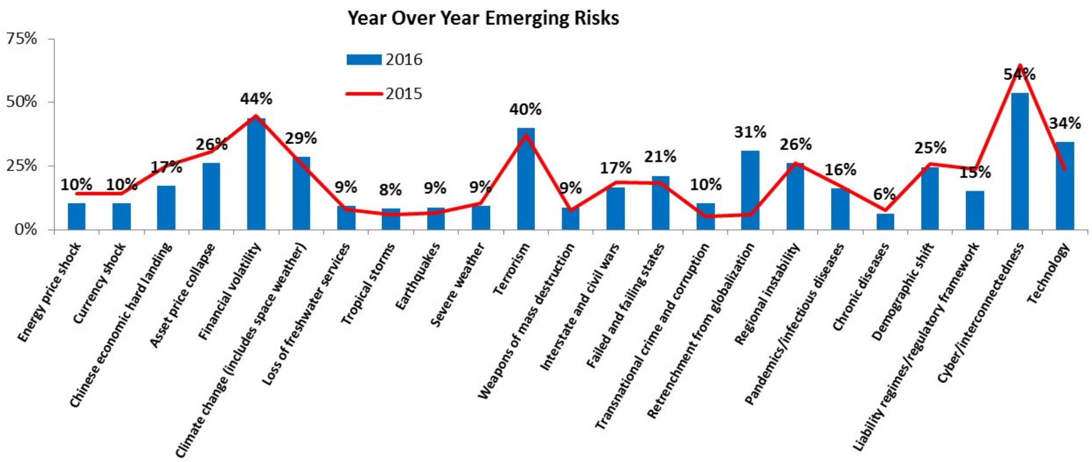
Figure 2: Rankings for Top Five Emerging Risks

Year	2013	2014	2015	2016
1	Financial volatility	Cyber	Cyber	Cyber
2	Cyber	Financial volatility	Financial volatility	Financial volatility
3	Asset price collapse	Terrorism	Terrorism	Terrorism
4	Demographic shift	Regional instability	Asset price collapse	Technology
5	Failed and failing states / Regional instability (tie)	Asset price collapse	Regional instability	Retrenchment from globalization

Three risks increased materially from the previous survey when respondents were asked to choose their top five emerging risks. *Transnational crime and corruption* doubled from 5 percent to 10 percent. *Retrenchment from globalization* and *technology* each rose by double digits. Quite a few risks were materially lower, led by those in the economic category. The individual risks included *Chinese economic hard landing*, *asset price collapse*, *liability regimes/regulatory framework* and *cyber*.

Figure 3 shows results for the top five emerging risks from the most recent two surveys, showing how risks can move materially between iterations.

Figure 3: Emerging Risks: 2015 Versus 2016



Source: Survey of Emerging Risks, 2015 and 2016.

Top Emerging Risk

When asked for a single emerging risk from the respondents' top five, the results are similar.

The results for the top emerging risk were as follows:

1. *Cyber*
2. *Financial volatility*
3. *Asset price collapse*
4. *Retrenchment from globalization*
5. *Technology*

Chinese economic hard landing, terrorism and *liability regimes/regulatory framework* dropped out of the top five. Interestingly, *asset price collapse* and *retrenchment from globalization* both had much higher responses when considering the top emerging risk.

Risk Combinations

This year's survey again asked about concerns due to combinations of emerging risks. The top risks chosen include *financial volatility, cyber*, *terrorism, asset price collapse*, *retrenchment from globalization* and *regional instability*.

The top five combinations of two risks were:

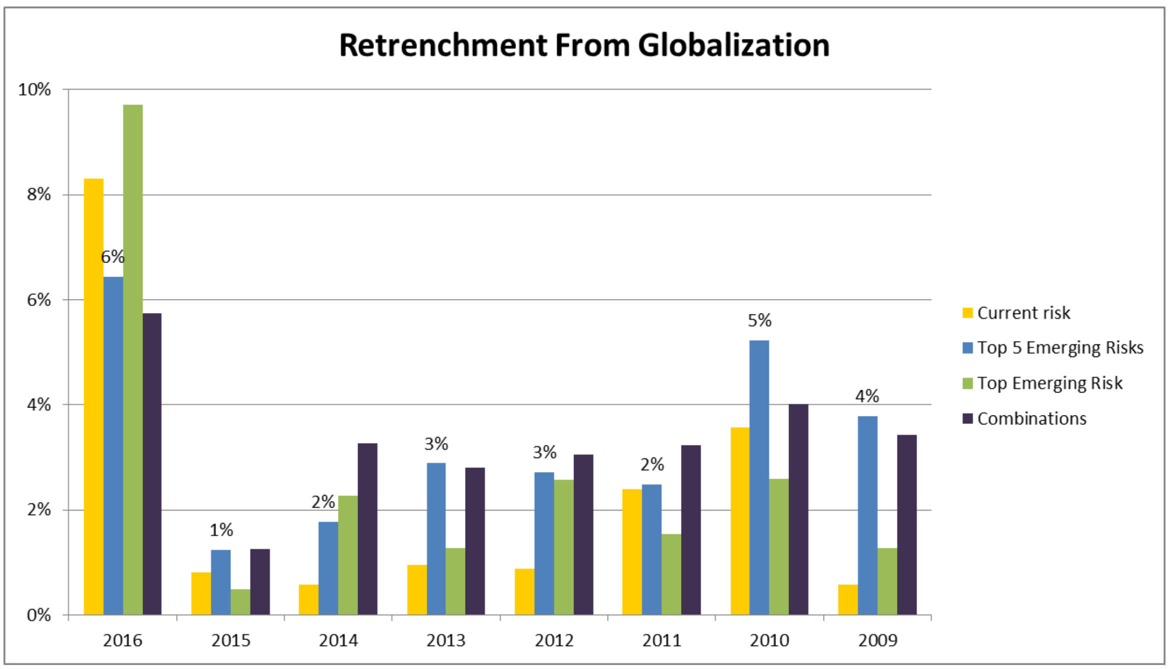
- *Terrorism* and *cyber*
- *Cyber* and *technology*
- *Financial volatility* and *retrenchment from globalization*

- *Asset price collapse* and *financial volatility*
- *Chinese economic hard landing* and *asset price collapse*

Retrenchment From Globalization

Each year it seems that at least one risk has a breakout response. This survey reflected concerns about uncertainty due to populist topics in the United States and Europe. This was reflected in the survey, with higher responses being recorded for *retrenchment from globalization* in each of the surveyed categories: current risk, top five emerging risks, top emerging risk and risk combinations. Together with *financial volatility*, this risk was ranked third among combinations. While impossible to determine exactly why a specific risk goes up and down, for this risk it is notable that it had gone down in the previous survey before it skyrocketed. **Figure 4** shows the progression of this risk since 2009 across all metrics.

Figure 4: Retrenchment From Globalization



Source: Survey of Emerging Risks, 2009–2016.

Conclusion

Emerging risks are a great challenge for management teams. How do you manage risks with longtime horizons, some of which are not yet on the radar for many, while incentives are set over much shorter spans? How can a CEO keep the focus on intermediate and long-term decisions when short-term fires are so distracting?

Environmental scans are a key component as risk managers attempt to embrace emerging risks. Several consulting firms and magazines share their knowledge, and the World Economic Forum annually releases its Global Risks survey. The collection of surveys described in this article is unique in that it attempts to trend the same risks over time, leaving it to the readers to incorporate this information into their risk framework.

How can modelers incorporate emerging risks when historical data may not be similar to future results? Unknown unknowns will affect everyone in unique ways, and stress scenarios are hard to develop. Unknown knowns, where past historical data fails to be predictive, should be tested as thoroughly as possible.

Emerging risks are a key component of an Own Risk Solvency Assessment (ORSA) filing for an insurer, describing how they are considered and acted on. These can be built into stress tests through specific scenarios like a pandemic or category 5 hurricane, or through stochastic modeling by adding risks like cyber or driverless cars to the operational risk model.

Those who look inward for risk management will fall short of goals and be surprised by discontinuities. Those who look outward will not anticipate every emerging risk, but they will turn the odds in their favor. This will clarify their vision and improve forward-looking projections.

Sidebar

What Risk Managers Are Thinking

- Cyber risk concerns are stabilizing but remain strong.
- Geopolitical category risks are higher, highlighting a pattern of even numbered year increases possibly tied to the U.S. election cycle.
- *Retrenchment from globalization* spiked as populism increases were noted in the United States and Europe.
- *Technology* risk continues to move up the rankings and is now in the top five for both emerging risks and the top emerging risk list. This risk highlights the insurance industry's unique role in risk management, not only managing its own risks but seeking out and accepting the risks of others to help businesses increase resilience.

Survey of Emerging Risks

In the Survey of Emerging Risks, respondents select from 23 risks in five categories. When a chart shows 24 risks, the last one is *other*, and the survey asks specifically which risks are missing so they can be considered for future surveys.

Economic Risks

1. *Energy price shock*
2. *Currency shock*
3. *Chinese economic hard landing*
4. *Asset price collapse*
5. *Financial volatility*

Environmental Risks

6. *Climate change (includes space weather)*
7. *Loss of freshwater services*
8. *Natural catastrophe: tropical storms*
9. *Natural catastrophe: earthquakes*
10. *Natural catastrophe: severe weather (except tropical storms)*

Geopolitical

11. *Terrorism*
12. *Weapons of mass destruction*
13. *Interstate and civil wars*
14. *Failed and failing states*
15. *Transnational crime and corruption*
16. *Retrenchment from globalization*
17. *Regional instability*

Societal

18. *Pandemics/infectious diseases*
19. *Chronic diseases*
20. *Demographic shift*
21. *Liability regimes/regulatory framework*

Technological

22. *Cyber/interconnectedness of infrastructure*
23. *Technology*

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