



SOCIETY OF ACTUARIES

Article from:

The Actuary

August/September 2010 – Volume 7 Issue 4



Challenging The Herd

BY MAX J. RUDOLPH

WHEN DEVELOPING a practical implementation strategy around emerging risks, it is necessary to avoid a herd mentality.

How does a profession that prides itself on the ability to discount contingent events treat those risks when there is no data? Too often modelers explain the intricacies of their solutions without the companion shortcomings being described, whether developing economic capital models, valuing a pension plan, or pricing a new product or investment. Unfortunately, users of this information don't want to hear it. The vast majority want a single number, whether it is senior management, regulators, rating agencies or investors. The result? They get what they ask for. The modeler who does not provide this information, or who insists on adding the appropriate caveats and the complete distribution of results, will soon be looking for "new opportunities."

WHAT ARE EMERGING RISKS?

So what is a risk manager to do? We know that new risks will appear suddenly, that long for-

gotten risks often repeat, and that even those risks where historical data exists will evolve over time.

When an earthquake occurs in a known area of seismic activity, there is data available going back hundreds, if not thousands, of years. Casualty actuaries have a pretty good idea of expected magnitudes well into the tail of these risk distributions. But sometimes fault lines lie inactive for centuries and we don't look in the right places for the data. The earthquake early in 2010 that created such a challenge in Haiti is an example of this. It was not predicted, and little preparation had occurred.

Ever since humans domesticated animals, viruses have jumped between species. A serious influenza pandemic has occurred in the past 100 years yet is not included in base mortality tables. While the impact is debatable by

reasonable experts, it remains that companies and regulators must incorporate this risk themselves. Less sophisticated/conservative (you choose) competitors ignore this risk, forcing the market to price life insurance as if this risk was not present. Other life threatening diseases will evolve. Genetically modified food or cell phones might have unintended consequences. How can anyone predict what these risks are going to be? How does the risk manager avoid being compared to the boy who cried wolf? Too many false warnings will dissipate credibility.

RISK SILOS AND UNKNOWN UNKNOWNNS

Another shortcoming of standard risk management practice that exploded into our consciousness during the recent financial crisis was the interaction between risks in the tail of a distribution. When times are good it is said

that the rising tide floats all boats. When times are bad, correlations are much higher than anticipated by historical data. Emerging risks act similarly in that something new might interact with something old in an unexpected way. Much was made of Donald Rumsfeld's 2002 "Unknown Unknowns" speech as Secretary of Defense, but he was talking about various forms of emerging risks. Sometimes historical data provides complete information, some-

... IT APPEARS THAT **RISK MANAGERS SUFFER FROM THE SAME ANCHORING EFFECTS THAT BEHAVIORAL FINANCE EXPERTS DESCRIBE FOR INVESTORS.**

times we know a risk exists but don't have a good appreciation for its risk distribution, and sometimes a risk is completely unknown and ignored. When management is aware that not all events are included in historical data sets, especially those going back less than a century, a company gains a competitive advantage and improves decision-making ability.

It is not always clear what category a risk falls into (known knowns, known unknowns, unknown unknowns). For example, as oil drilling moved into deeper and deeper waters, should someone have examined the environmental risk of a catastrophic oil leak? Was this a known unknown? Many think so today, after such an event occurred. This example describes a Black Swan event, the term developed by Nassim Taleb in his book of the same name where a risk is not considered prior to its occurrence but is recognized by all after the fact.

Many risks are modeled in silos, ignoring interactions with other risks. A correlation matrix attempts to combine these results into that single, magical number that stakeholders desire.

This number is always calculated to several more significant digits than can be justified by the accuracy of the input assumptions. This is not to say that generating this information is not useful. It is, but the process to develop a model where the risk owners build assumptions that produce a range of reasonable results, surrounded by a story that describes how an entity will react to both good and bad scenarios, is much more useful.

Much of the historical financial data used focuses on a recent period of time, and rolls forward with each new period. For example, the most recent 500 trading days or 10 years of experience is used. If an outlier has not occurred during this data set collection period, then calculated economic capital is too low and entity value is too high. If an outlier has occurred during that period, it will dominate, and the opposite happens. Using unadjusted recent data is procyclical, resulting in capital calculations moving higher when times are bad. This increases the systemic risk at a time when capital should be providing a buffer against that type of risk. Preference would be to have a process that is mean reverting, where excess capital is released during bad times and built up during good times.

SURVEY AND ANCHORING

The SOA recently conducted its third Risk Manager Survey of Emerging Risks, where risk managers were asked to choose up to five emerging risks with the greatest impact from 22 developed by the World Economic Forum (www.weforum.org). Not surprisingly, economic risks have dominated the survey

during the recent financial crisis. What was not expected was the variation between surveys. It appears that risk managers suffer from the same anchoring effects that behavioral finance experts describe for investors. When the price of oil spiked, that was the top emerging risk. When the survey was completed right after a large drop in the equity markets, that became the top "emerging" risk. Most recently, after the world's financial system was forced with government-driven liquidity, deficits became the top choice. These results are human nature and not something to condemn but rather something of which to be aware. The risk managers who know they suffer from a focus on the recent past can better see a longer-term risk horizon. This improves decision making, and can be done with minimal investment.

CONCLUSION

Developing a practical implementation strategy around emerging risks is a challenge due to the short-term nature of financial markets and human nature. A culture that embraces long-term strategic planning and challenges the herd mentality so pervasive on Wall Street will empower a firm to make better decisions. **A**

Max J. Rudolph, FSA, CFA, CERA, MAAA, is the owner of Rudolph Financial Consulting, LLC. He can be contacted at max.rudolph@rudolphfinancialconsulting.com.