Article from:

Risk Management

June 2009 – Issue 16

Simulating an Emerging Risk Project

By Beverly Barney, Shiraz Jetha, Frank Ashe, Evelyn Meierholzner and Dave Ingram

FIRMS NEED TO THINK ABOUT AND PREPARE FOR ADVERSE EVENTS and environments that have never happened before—the "unknown unknowns" of Donald Rumsfeld. In-depth exercises exploring emerging risks and their consequences for the firm provide a deep insight into the organization's activities and vulnerabilities, while helping to better prepare to survive and thrive when these occur. This is the real value of these emerging risk exercises. If this value was ever unclear, the financial market events of the past 18 months have certainly highlighted the value of such work.

However, few firms, and few people, have systematically approached this topic. Most management practices are organized around areas where there is information that, with varying degrees of analysis, can lead to a choice between clear alternatives based upon sensible business criteria. Emerging risks, by definition, usually do not have any supporting data. So how do businesspeople investigate these emerging risks?

This is just the question that a self-selected and ad-hoc group of risk managers decided to explore with a virtual project organized through the International Network of Actuarial Risk Managers (INARM). The participants were from the United States, Australia and Germany. The group meetings were held via the INARM blog, and over 10,000 words of the discussions are still posted there.

The group worked on the project over four months. We agreed to use a six-step process:

1. Envision a specific emerging risk scenario.
2. Develop potential impacts of the scenario on an insurance company.
3. Discuss how to produce a stress test that can identify the potential severity of the impact.
4. Describe ways that an insurer might develop plans to minimize the impact of the risk.
5. Develop a plan to perform a dry run test (if applicable).
6. Develop leading indicators that might show that the risk is more or less likely and define action triggers as well as triggers for removing the risk from surveillance.

At the end of the four months, the group had several insights from the project:

- Dedicated resources are essential—people attempting to identify emerging risks need to have a significant portion of their time allocated to this; it will not be effective if simply added on to their existing workload.
- The process is more difficult than anticipated, especially when the emerging risk is not something that is an extrapolation of current insurance business trends.
- More questions were raised than were answered.
- Most group members never became comfortable with the scenario chosen.
- The experience with this project will make future emerging risk projects easier and more productive.
- The blog was not the best media for this project; more live discussions would have been helpful.
- More structured leadership was needed than the all-volunteer group could provide; with more resources allocated within a firm, a formal process can be undertaken.

The remainder of this article is a brief summary of the group's results from the six steps.

STEP 1. ENVISIONING A SPECIFIC EMERGING RISK SCENARIO

The scenario selected was specifically chosen because it was different from other emerging risks discussed in other forums. It was taken from *Terror and Consent* by Philip Bobbitt, where the evolution to a "market state" (from a "nation state") was a central idea of the book. In a "market state" more and more responsibilities of governments are left to the market to provide, to the extent that private sector options are available for such services. Less government involvement is replaced by more involvement by non-government organizations (NGOs). Market states are legitimated by promoting the opportunities of their people; the United States, United Kingdom and European Union

Beverly Barney, FSA, CERA, MAAA, is vice president and actuary at Prudential Insurance Company of America in Newark, N.J. She can be reached at *Beverly.Barney@prudential.com.*

CONTINUED ON **PAGE 16**

Simulating an Emerging Risk Project | from Page 15

are seen as examples of states that appear to be evolving to market states. For a more detailed discussion, the interested reader is referred to the blog at *http://riskviews.wordpress.com/emerging-risk-project/* and to Bobbitt's book. One member of the group called the scenario "emerging risks from government's withdrawal from historic core functions"—a succinct summary.

Shiraz Jetha FSA, FCIA, MAAA, CERA is an actuary in the Office of the Insurance Commissioner in Olympia, Wash. He can be reached at *shirazj@oic.wa.gov.*

One of the ironies of the project was that over the four months that we worked on it, the scenario came to look more and more unlikely as the world moved toward more government intervention rather than less. The group members spent almost half of the project examining and seeking to understand the scenario. This is not unusual, as it is important for those involved to have a solid understanding of the scenario. In practice, independent experts may be consulted in matters pertaining to the scenario, in particular its contextual setting.

Frank Ashe, PhD, is a consultant in risk and investments, and an associate professor at Macquarie University. He can be reached at *frank@quantstrat.com.au.*

The "market state" scenario was eventually deemed to have implications on globalization, pensions and healthcare, and regulatory constraints on corporate behavior. To bring the scenario down to more manageable proportions, the group agreed to limit the scenario to the situation where one country quickly moves closer to a market state, rather than attempting to work through the consequences of the entire world shifting in that direction.

STEP 2. ENVISIONING POTENTIAL IMPACT ON INSURERS

The group interactively developed the following list of potential implications:

- More business opportunities for insurance companies.
- Higher technical challenges due to Social Security type features of insurance coverages and a more diversified ethnic mix in the portfolio.
- Not necessarily less regulation, but more principle-based and strong solvency regulations due to the increasing importance of the private sector for the social welfare. Potentially more Social Security regulations will be instituted for particularly sensitive private sectors (for example, this is true in France today for certain carriers in the second layer).
- More active regulators and more non-formal supervision by NGOs, e.g., consumer organizations.
- Strong expectations on the part of the insurers, the political function, the public (mobilized via NGOs) and the legislature that companies act in a socially responsible way while remaining exposed to capital market pressure to produce adequate returns. This could mean that changes in the legal forms of the companies are necessary.
- Increased responsibility and necessity for the private sector to introduce cost efficiency while operating in an environment shared by state social security (example: curbing health insurance expenditure).
- Improved risk management for catastrophe risk.
- Challenge to drive the capital market environment such that it can accommodate bigger and bigger investments for retirement and other covers.
- Challenge to deal with longevity risk from an aging population.
- Increased cross-border competition and M&A activity.
- Increased technical competencies required to succeed in the business.
- Increased claims on insurance policies that were sold before the shift to market state.

Insurers will have to determine which lines of business ("risks") they will pursue, which will depend, in turn, on their own strengths, including expertise levels, economic capital requirements, availability of capital to support business plans, infrastructure requirements to support the lines, distribution implications, etc.

A final summary of this step would be to develop a risk matrix along the dimensions: internal (product, operational functions, investments, human resources, capital resources, strategy, etc.) and external (competitive environment, regulatory, macroeconomic drivers, systemic market risks, "To go from possible plans to actual implementation choices, management must decide on the appropriate risk response(s) along internal and external dimensions."

etc.). This would allow us to create diverse risk scenarios and assess them along the relevant dimensions.

STEP 3. DISCUSS HOW TO PRODUCE A STRESS TEST THAT CAN IDENTIFY THE POTENTIAL SEVERITY OF THE IMPACT.

The company could first do sensitivity testing to see how sensitive the volume and amounts of claim payments are to changes in individual assumptions. Then, deterministic scenarios could be run increasing/decreasing those assumptions to which claim volume and amounts are most sensitive, to see at what values of those assumptions the pricing no longer covers claims plus expenses as well as just the claims.

The company might also do stress testing to see what volume of policies is needed to achieve assumptions +/- X standard deviations with Y% confidence.

The company might also want to identify other scenarios which could interfere with meeting objectives for this business.

After these analyses and testing have been done, the company would want to identify leading indicators that might mean negative outcomes are becoming more likely, and then monitoring systems for those indicators.

Negative outcomes are not only in additional quantum of claims; there is also the potential loss of market share as competitors react more appropriately to the changing conditions.

STEP 4. DESCRIBE WAYS THAT AN INSURER MIGHT DEVELOP PLANS TO MINIMIZE THE ADVERSE IMPACT OF THE RISK.

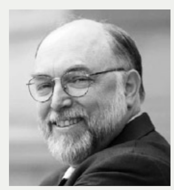
To go from possible plans to actual implementation choices, management must decide on the appropriate risk response(s) and may be guided by an analysis of potential risk responses along the internal and external dimensions described above or adjusted as appropriate.

The response can be internal or external. Internal responses include actions such as: adjustment of product strategy; adjustment of underwriting strategy (for example in disability); identification of improved investment possibilities; strengthening of know-how in product, underwriting, investment, etc. areas by bringing in new staff; additional capital resources for higher and riskier business volume; and increased peer review. As examples of external responses we have: the use of consultants to increase know-how in certain areas including pricing of new coverages; reinsurance for difficult to assess, rare or new, "unknown" and "difficult to quantify risk"; alternative risk transfer solutions such as catastrophe bonds; market-wide pooling of otherwise uninsurable risks; joint ventures to leverage common resources; joint marketing effort; and regulatory effort to bring down systemic market risks.

Evelyn Meierholzner Aktuar (DAV), FRM, MBA, is the owner of Risk! Act - Actuarial Services, Risk Management, Business Strategy in Munich, Germany. She can be reached at *evelyn.meierholzner@risk-act.com.*

STEP 5. DEVELOP A PLAN TO PERFORM A DRY RUN TEST (IF APPLICABLE)

The group decided that this scenario did not lend itself to a dry run, in part because the impact of this type of shift of government policy would be felt increasingly over an extended period of time. A dry run test is more oriented to an incident that hits suddenly in a compressed time frame.



David Ingram, FSA, CERA, MAAA, is senior vice president at Willis Re Inc in New York, N.Y. He can be reached at *dave.ingram@willis.com.*

STEP 6. DEVELOP LEADING INDICATORS THAT MIGHT SHOW THAT THE RISK IS MORE OR LESS LIKELY AND DEFINE ACTION TRIGGERS AS WELL AS TRIGGERS FOR REMOVING THE RISK FROM SURVEILLANCE.

Changes in the following indicators were considered important:

1. Market share for companies with different forms of governance and management.
2. Level of discussions at industry events, articles in newspapers and pressure from NGOs.

CONTINUED ON **PAGE 18**

Simulating an Emerging Risk Project | from Page 17

3. Unemployment and underemployment rates.
4. An index of medical costs for various coverages.
5. Numbers and amounts of claims submitted relative to expected.
6. Relative competitive price index and price differentials.
7. Numbers and amounts of claims compared with government statistics

CONCLUSION

In the end, do we really want to study risks like this that seem so implausible? Most likely, if scenarios are really implausible within a certain time horizon, then we shouldn't bother. Management responds to risks that are plausible but with low probability. In this case, the idea of a change in the way the political system, the social system and the economic system interact may be judged to be either more or less plausible as the current crisis evolves.

Part of this change will be the loss of influence by the Chicago free-market school, whose ideas were pushed too far by various rent-seekers, naïve but influential ideologues who misunderstood the theory, and agents (in the economic sense) who pushed the "theory" for their own gain, e.g., senior management in most investment banks, ordinary banks and other companies.

We don't even need new regulation for this to happen—regulators using their current powers but with more determination, and less regulatory capture, will be sufficient. So perhaps this scenario is not really implausible; it just hasn't happened yet.

In the end, the group decided that even in this case where events that occurred during the project period led us to think that the world was going in the opposite direction, an exercise in imagining the impact of less regulation and government involvement in the economy was useful practice for imagining the ramifications of more regulation and government involvement, in part because the exercise encouraged imagination in a way that is not often required in day-to-day business. ✦

As this project was ending, all of us agreed that we wanted to try this again using some of the "lessons learned." We're starting by focusing on what seemed to be hardest for us—understanding the future scenario. Several members of the Forecasting and Futurism Section are now working with us, as well as the author of the periodic survey on emerging risks. We've selected the emerging risk that we think we will focus on and are now doing research to collect as much information as possible in order to select the best technique for studying a possible future event. If this sounds interesting to you and you'd like to join us, please contact Bev Barney.