Actuarial Risk Management
Global Actuarial Consultancy

Strategies & Risk Solutions for Executives
43Q2023 Issue 8

Contents

Achieving Resilience Page 3

Resilience can be described as bending without breaking. There are four aspects of ERM that all need to be fully adopted to achieve this important result. By Dave Ingram.

Using Risk Appetite: Contrarian Views Page 6

It is commonly assumed that higher returns require higher risk to be accepted. Fear and greed may outperform over the short term but often the last investor in does poorly. Long periods of stimulus provide warning that economic cycles come to an end eventually. By Max Rudolph.

RiskMaster Cheat Codes Page 9

How much of your ERM program has been written down? Is it at risk of being lost when a key player leaves the insurer? For ERM to become a process embedded in the culture rather than a project it must be documented. Both RiskMaster Cheat Codes for the underlying framework and specific topics like stress testing and risk reporting to allow a new risk team to start from a solid base are needed. By Dave Ingram.

Water, water, everywhere Page 11

Climate change and population growth have stressed fresh water sources, leaving agriculture and coastal residents with opposing issues. While aquifers and rivers struggle, extreme weather and sea level rise provide an overabundance of water. By Max Rudolph.

Sign up for the associated December 13 webcast

+1 512-345-5200 | info@actrisk.com | www.actrisk.com | 5914 West Courtyard Drive, Suite 190. Austin, Texas 78730

Actuarial Risk Management
Global Actuarial Consultancy

Strategies & Risk Solutions for Executives
4Q2023 Issue 8

To Our Subscribers

We want to thank our new subscribers and welcome everyone to the eighth issue of the ARM quarterly newsletter! Thanks to our new subscribers. We hope that you all find this publication valuable. With a few short articles meant to provide unique insights, we present ideas about how to address specific problems and introduce potential risks and opportunities that may not yet be on your radar.

The primary authors are Dave Ingram and Max Rudolph. We have been active participants in the risk management, actuarial, investment and insurance spaces for many years.

Subscribers are encouraged to suggest topics for articles and ask questions of the authors during our follow-up webinars and podcasts. Ever cognizant of regulatory requirements, leveraging them to add value to your company in practical ways, is our focus.

Sponsored by Actuarial Risk Management (ARM), the Strategic and Risk Solutions for Executives (SRSE) subscription is free to all readers.

A free webcast is also available and our podcasts covering these topics is called Crossing Thin Ice. If you would like to further engage the authors as consultants, for continuing education purposes or to join our ERM Discussion Group, please reach out. More info can be found throughout this newsletter. We hope to help you find a solution that meets your needs!

Please forward to others who study risk.

For more details
Visit www.actrisk.com

Subscribe to Crossing Thin Ice on your favorite podcast platform

We hope you will join us on our journey!

Sign-up to receive future newsletters automatically at https://www.surveymonkey.com/r/AMRSRSE

The content of this newsletter is meant to be educational and thought provoking. Nothing in it should be interpreted as investment advice.

+1 512-345-5200 | info@actrisk.com | www.actrisk.com | 5914 West Courtyard Drive, Suite 190. Austin, Texas 78730

Achieving Resilience

I often describe ERM as a set of "n+1" control cycles, one for each of the "n" key risks and one more for control of the aggregate risk in comparison to the aggregate ability to absorb losses. These control cycles are the true skeleton of ERM, but there are four additional aspects to ERM that are needed to provide resilience for those who adopt and maintain an ERM system.

1. Transparency-around level of exposures of key risks, the success or failure of risk mitigation activity, and the gains or losses associated with risk exposures.

2. Discipline-the commitment to reliable management of all key risks and to the aggregate risk of the firm.

3. Alignment-consistency between the primary strategic objectives of the firm and the objectives of the risk management programs, so that ERM supports the primary goals of the firm.

4. Adaptability-planning to react to information about the changing risk environment to keep the focus on the risk management needed to succeed next year, not last year.

The ERM process draws its power from transparency and discipline, and its direction from alignment, and can only maintain its effectiveness over the long term with adaptability. While each of the four keys to ERM provides these tangible benefits, resilience can only be achieved with all four.

But this seems so self-evident on paper. These four practices were chosen by me because of my experiences with insurers who never thought to adopt one or more of them.

Are you finding these articles thought provoking? Did you know that Dave and Max are now leading ERM Discussion Groups for insurers?

+1 512-345-5200 | info@actrisk.com | www.actrisk.com | 5914 West Courtyard Drive, Suite 190. Austin, Texas 78730

Achieving Resilience (cont'd)

Without Transparency, risk management ends up being in effect a private choice of the managers and supervisors whose areas touch on the risk as it enters and potentially impacts the insurer. No one will know exactly what risk management that they are doing. This has a major impact upon the next two practices.

Without Discipline, risk management cannot be counted upon to be there consistently protecting the insurer when it is needed. In 2008, I heard that a major writer of variable annuities with embedded guarantees decided that hedging those guarantees was just too expensive that year, so they didn't bother to buy them. That extreme example of a lack of discipline ended up causing them to lose a significant fraction of their capital when the stock market crashed.

In that case, the decision not to hedge was made by a senior officer, but in other cases, lack of discipline is found at the other end of the insurer's hierarchy. How often is it noticed when a claim is filed that facultative reinsurance was not purchased for a new policy that was much larger than the insurer's stated retention? In either case, transparency would have made a big difference about how easy it would have been to just skip the risk mitigation. Discipline also includes the practice of consistently examining the root cause of both losses and wins.

Without Alignment, the risk management system will be like a suit of clothing that is the wrong size, perhaps too tight in some places and baggy in others. One way of thinking of alignment is the degree to which the actual risk profile matches up with the planned risk profile in terms of the mix of different types of risks. A risk management program that is out of alignment could result in concentrations in different risks than the intended strategy of the insurer, for example, too much

+1 512-345-5200 | info@actrisk.com | www.actrisk.com | 5914 West Courtyard Drive, Suite 190. Austin, Texas 78730

Achieving Resilience (cont'd)

homeowner risk and not enough auto risk, when the strategic vision of the insurer is to concentrate on auto risk. Another type of alignment might be in terms of degree to which the insurer takes on risks with highly volatile earnings risk vs. risks with high amounts of solvency or capital risk. In both types of alignment, the insurer's strategy is likely to be based upon a combination of the expertise of the insurer in selecting and managing different types of risks and the shifting environment that could cause some risks (or aspects of risks) to shift higher or lower over time. Again, Transparency can be a powerful tool to identify situations where the risk management system is not aligned with the strategy.

Without Adaptability, the risk management system may be a highly touted, well executed way of managing the most significant risks under a particular strategy.

But as time passes, the nature of risks, the impact of competition on the availability of the best risks at a good price and the expectations of stakeholders for the short-term earnings may change. If risk management doesn't adapt to the changes, it will be marginalized. On the other hand, in some environments, the risk manager who tries to "go along to get along" will end up abandoning their fundamental role entirely. Again, looking to the Financial Crisis for examples, the financial institutions that had the worst experiences adapted too much, abandoning many of their fundamental risk management practices. The institutions that had the least bad results were the ones where risk management was able to bend but not break, not completely avoiding the ultimately toxic mortgage securities, but limiting their exposure so that the ultimate losses were large but within or at least close to tolerances.

That bending without breaking IS resilience. Management at resilient financial institutions were able to see what was happening (Transparency), they were able to count on risk management to consistently implement their program even as all hell was breaking loose around them (Discipline), following the firm's strategy (Alignment) and changing as management became aware that it needed to change (Adaptability).

That is how to achieve Resilience.

+1 512-345-5200 | info@actrisk.com | www.actrisk.com | 5914 West Courtyard Drive, Suite 190. Austin, Texas 78730

Actuarial Risk Management
Global Actuarial Consultancy

Strategies & Risk Solutions for Executives
4Q2023 Issue 8

Using Risk Appetite:
Contrarian Views

Risk appetite defines the strategy chosen around risk. Many insurers formally adopt a policy at the board level, making changes to it sticky and avoiding frequent changes. Our personal risk strategy provides similarities that firms can learn from.

Adding Risk at the Wrong Time
When we exhibit normal behavior of fear and greed this leads to an unstable risk appetite, willing to take more risk when conditions are positive and stable, and reducing risk during a crisis. When the switch between risk on and risk off occurs is often obvious to the so-called rational investor, with others continuing to "buy the dip" very late in a cycle and just before a crash. This group of latecomers is often referred to as dumb money (mostly retail investors) but that's not true. There are plenty of professional investors who have gotten burned when they

Each of us thinks we are rational but are likely to fall prey to the fear of missing out (greed) when conditions are good and fear, when extreme conditions appear during a crisis. Did you buy the dotcoms in 1999, financial stocks in 2006, Bitcoin or meme stocks in this most recent cycle? The current financial run hasn't been completed, but do you own concentrated positions in an asset class, financial products or distribution networks? Have you become highly levered? How did you react to earlier corrections? More importantly, what did you learn?

Check out the Crossing Thin Ice podcast

+1 512-345-5200 | info@actrisk.com | www.actrisk.com | 5914 West Courtyard Drive, Suite 190. Austin, Texas 78730

Using Risk Appetite (cont'd)

were late to the party and got caught swimming naked when the tide went out and the true situation was revealed. This has been true for institutional investors and their boards.

I authored a research paper following the financial crisis of 2008 that concluded insurers outperformed banks during that period because their investment policy statements (IPS), required by regulators and formally approved by the board, provided some friction and made it harder to add new asset classes in concentrated positions. Slowing down the ability to add the latest hot asset class kept existing strategies intact, avoiding many of the losses when conditions weakened.

Companies that stress test and scenario plan also have an advantage, especially if the results are used to manage the business rather than a checkbox exercise for regulators and rating agencies.

Behavioral finance encourages us to be aware of our shortcomings and biases. Recency bias is especially prevalent in the financial markets. When others do well, we feel obliged to follow their lead (herding) even if it's not clear why the decision makes sense for our unique circumstances. When others are having success it's hard not to follow their lead. This can lead to adding to risk appetite levels at inopportune moments. It's always better to take a deep breath and think about what might be missing from the analysis done to date.

Dave, Max and other ARM consultants are available to help with your ERM needs. Whether setting up a voluntary ORSA from scratch, updating an internal ERM process or improving communication with rating agencies, let us share our knowledge, brainstorm ideas and help meet your goals.

+1 512-345-5200 | info@actrisk.com | www.actrisk.com | 5914 West Courtyard Drive, Suite 190. Austin, Texas 78730

Using Risk Appetite (cont'd)

Excitement of New Things

When a product or new asset class is being considered that comes with new characteristics, there is excitement in the room and expectations of high returns. It may have been brought to the company by an external hire with prior success at a competitor. Everyone wants them to succeed. A contrarian viewpoint is often discouraged, but it is important for someone to consider the product or asset class over a longer time horizon within a full business cycle. Some products today have had success over the last ten years, perhaps driven by government stimulus, and can demonstrate high historical returns.

How will these products or asset classes perform during a recession, spike in interest rates, quantitative tightening or deflationary period? Demographic trends are expected to slow growth in the western democracies and previous growth engines like China. Climate change and reversing stimulus will also stress these products, making it hard for them to meet client needs and insurer ROI targets.

Winning the Long Game

There are times when different approaches are appropriate, and plural rationality concepts address how to match up preferred responses to current conditions. That discussion extends the simple "slow it down" and "contrarian" thought processes discussed here.

Formal risk appetites make it harder to repeatedly change practices without making it impossible. That is a good thing, providing time for additional analysis to be completed. A risk manager can often provide contrarian views that lead to thought-provoking discussions before decisions are made. It may seem like everyone else is being successful at your expense, but maintaining a mostly stable risk appetite will pay off in the long run.

+1 512-345-5200 | info@actrisk.com | www.actrisk.com | 5914 West Courtyard Drive, Suite 190. Austin, Texas 78730

RiskMaster Cheat Codes

I imagine that somewhere in the doomsday bunker hidden in the mountains somewhere, there is a book, more likely an entire wall of books, that contain the instructions to restart civilization.

At the other extreme, my impression is that many insurers do not have even a brief Cliffs Notes version of that for their ERM program. I've seen it over and over that when the executive or board member who is the champion of the last ERM program retires or leaves, the ERM program often just withers away. And there is little help available for someone who wants to keep it going or restart it.

The Risk Management Framework is the official name of the document that provides a brief summary of the key decisions that have been made about how ERM is to be practiced at a company. It has enough information that when the ERM champion leaves, their successor should be able to understand from that document what is the expected flow of back and forth that makes up the ERM program and who are the main players in that activity. It is not a detailed manual documenting every step. That level of knowledge should easily survive the passing of one executive. I like to think of this as the "RiskMaster Cheat Codes". With a good Risk Management Framework document a new executive or board member should be able to step right in and work to maintain or revive an ERM program.

So when you are writing or updating your RM Framework document, imagine that you were writing it to provide a high-level guide to that next generation of management and/or board members to guide them in continuing the life of the ERM program. Like the idea of writing a letter to your 21-year-old self.

Here is a suggestion of what to include, related to five components of an ERM Framework that appear in both the NAIC ORSA Guidance Manual and the AM Best Rating Criteria document:

1. Risk Identification and Prioritization – tells whether and how you identify your risks or if you are using a standard list. A good process strikes a balance between a totally homemade list that potentially misses one or more of the risks that are important to most insurers and a totally standard list that misses your unique situation.

Check out the Crossing Thin Ice podcast

+1 512-345-5200 | info@actrisk.com | www.actrisk.com | 5914 West Courtyard Drive, Suite 190. Austin, Texas 78730

RiskMaster Cheat Codes (cont'd)

2. Risk Management and Controls – One way to think of a complete risk management system is "n+1" control cycles, one for each of the "n" key risks and one more for controlling aggregate risk. These control cycles will each have its own unique characteristics to reflect the differences among the risks and the variety of options for managing each risk.

3. Risk Appetite, Tolerance and Limits – Risk limits are the pain points for each of the "n" risks, Tolerance is that point for aggregate risk and Appetite is the overall risk strategy or approach.

4. Risk Culture – Tells the story of how staff are organized to accomplish the above items. In general, the culture of a business is the approach to accomplishing the objectives that have been learned by the staff and passed along to new staff as they are brought on board. Risk Culture can then be thought of as the approach to risk management. Creating a risk culture in a company that doesn't have one requires significant time and attention from top management.

5. Risk Governance – The oversight by top management and the board of the risk management system. This usually includes a risk oversight committee of the board and in a larger insurer a management risk committee as well.

Two additional topics that might be next on the list for inclusion in the ERM Framework are:

- Risk Reporting – this is needed at two levels – at a detailed level to support the ongoing risk management efforts and at an summary level to convey the total quantum of each risk that are accepted by the insurer as well as the amount of risk that remains after risk management efforts to top management and the board risk oversight committee several times per year.

- Stress Testing – a practice that we have mentioned over and over again because we believe that it is the absolute most cost effective way for an insurer to gain insights into its risks and the effectiveness of its risk management system.

One key thing to keep in mind is that this is being written for a reader who has never seen the program in operation. That will make these RiskMaster Cheat Codes the most effective. And should break the cycle of death and rebirth for the Risk Management program.

+1 512-345-5200 | info@actrisk.com | www.actrisk.com | 5914 West Courtyard Drive, Suite 190. Austin, Texas 78730

Water, water, everywhere:
But not a drop to drink

Private and public insurers increasingly are dealing with extreme weather events that highlight the presence of too much water (hurricanes, inland flooding) or too little water (drought, fire). This impacts both assets and liabilities for many product lines within an insurer and is a broad emerging risk. Here we'll cover some components to be aware of, but others will have to be revisited at a later time.

Continuation of current climate trends will generate sea level rise that devastates coastal areas with permanent flooding, pushes salt water up major rivers like the Mississippi and Thames and strengthens hurricanes in areas where natural barriers are now underwater. Other challenges will interact with these trends in my lifetime.

Some concerns are well known. By the end of a recent college graduate's lifetime (about 2100) the southern third of Florida will be underwater. It is too late to change this outcome. A limestone base in its southeastern corner is porous, making it impossible to keep rising water out of Miami by building seawalls. Money can be thrown at the problem for a while, extending the period where people can live there, but very little land is more than a few inches above the current sea level so a 30" rise in the ocean level will overwhelm the area.

Norfolk

Other areas have multiple perils to deal with. In the Virginia town of Norfolk, feedback loops make the situation worse. Both sea level rise and subsidence from ice age aftermath are ongoing challenges. Only New Orleans among cities is at greater risk in the US. High tides and storm surges regularly cause havoc on the local roads and airport runways, with El Nino years especially challenging. The world's largest naval base has to continually adjust infrastructure so piers function correctly. As of 2016 Norfolk's 46 cm sea level rise over the past 100 years could be broken down between the global rise in sea level (half), subsidence, and collapsing aquifers due to groundwater withdrawal. Some water tables have fallen 200 feet since Europeans first arrived in the area. Subsidence, where the ground is falling, is offset by rising land much further north as land corrects distortions from the ice age (most – about 2/3). In addition, an impact crater from a meteor 35 million years ago at the south end of Chesapeake Bay pulls the surrounding land slowly toward it like a magnet. There are also impacts from the slowing Gulf Stream, moving a higher current closer to the coast in this region.

+1 512-345-5200 | info@actrisk.com | www.actrisk.com | 5914 West Courtyard Drive, Suite 190. Austin, Texas 78730

Water, water, everywhere (cont'd)

Infrastructure has become outdated for this fast-evolving environment, slowing the local economy. To build resiliency, projects like storm sewer updates need to be coordinated between federal, state and local governments. Many governmental agencies and armed services are located here. The military coined the term threat multiplier based partly on their concerns about the Norfolk area in their mission to maintain combat readiness. Coordination is key. If one group builds a larger levee the flooding goes elsewhere. It is a closed system, a true zero-sum game and a growing problem.

Many of the suggested solutions are familiar; rain gardens, updated building codes, buying out homeowners in a flood plain, moving infrastructure out of harm's way and expanding wetlands. Hurricane Sandy showed the benefits of moving computers, power generators and heating/cooling units above the ground floor. Other solutions are novel, such as pumping potable water into depleted aquifers to keep them from collapsing further.

Water issues mid-continent

Not every water issue is on the coast. Farmers have been depleting inland aquifers as long as they have utilized central pivots. After only 100 years of farming above the Ogallala Aquifer some parts of it are near empty with replenishment estimates of 1,000 years or more. All while entering an extended period of drought.

The Colorado River Basin extends from Wyoming to Mexico. The scenic river no longer survives to the Gulf of California and water rights are a contentious issue.

Rate of change

Some will say that the natural cycle has ebbed and flowed for millions of years. This is correct, but misses the point of today's challenges. The rate of change to the climate is happening faster than all but a few prior events, and those events were driven by volcanism with release of carbon dioxide into the atmosphere and mass extinctions of most species. These are key risk metrics – how many species are going extinct and at what rate?

The insurance industry can try to "nudge" the population in the right direction by charging sustainable premiums where damage is expected to grow, encourage building code strengthening and improved public infrastructure. Covenants can be strengthened and coupon rates raised on fixed income investments. By steadily making these changes it will make it easier to manage this risk through creating natural barriers and sustainable conditions, but there is no guarantee that these types of changes will be accepted by the public or regulator.

+1 512-345-5200 | info@actrisk.com | www.actrisk.com | 5914 West Courtyard Drive, Suite 190. Austin, Texas 78730

Actuarial Risk Management
Global Actuarial Consultancy

Strategies & Risk Solutions for Executives

Now providing three ways for you to get insights, strategies and solutions from ARM consultants to help resolve your risk issues.

Newsletter

- 3 to 5 articles quarterly
- Written by Dave Ingram, Max Rudolph and other ARM consultants focusing on risks faced by insurers and risk management strategies
- Available on the ARM website

Webcast

- One-hour live webcast once each quarter following the newsletter publication
- Webcast includes brief presentations, interviews with authors and live Q&A with your questions answered regarding the newsletter topics

Podcasts

- Two per month
- Delivered by Dave Ingram & Max Rudolph
- Presenting material from the newsletters and webcasts in a totally audio format.
- Available wherever you download podcasts

* No charge for subscriptions to ay of the three services

“

While insurers have been challenged by low interest rates and the pandemic, the next few years will see a radically changing environment for insurers. We will be using this provocative platform to identify emerging risks and delve into what we see as the drivers of future success.

DAVE INGRAM | SENIOR ERM CONSULTING ACTUARY

”

Sign-up to receive notices for the newsletter/webcast automatically at https://www.surveymonkey.com/r/AMRSRSE

+1 512-345-5200 | info@actrisk.com | www.actrisk.com | 5914 West Courtyard Drive, Suite 190. Austin, Texas 78730