Introduction

Welcome to the first edition of the ARM quarterly newsletter! We hope to make this publication valuable to you with several brief articles that provide unique insights, some ideas about how to address specific problems and introduce potential risks that may not yet be on your radar.

The primary authors will be Dave Ingram and Max Rudolph, along with a number of additional ARM consultants. We have been active participants in the risk management, actuarial, investment and insurance spaces for many years. We plan to share our experience and knowledge to assist executives from insurers of all sizes and specialties to make better decisions. We expect to present multiple perspectives on issues, but we will always tell you our opinion of the most compelling approach.

Those who become subscribers can suggest topics for articles and ask questions of the authors during our follow-up webinars and discussion sessions. We expect to conduct some surveys, as you see in this issue, as well as walk the reader through methods to think about issues and build out their capabilities to resolve those issues in the future. Ever cognizant of regulatory requirements, leveraging them in ways that add value to your company in practical ways will be our focus.

Published by Actuarial Risk Management (ARM), the Strategic and Risk Solutions for Executives (SRSE) subscription will consist of two paid tiers. The newsletter is free to to all who are interested.

A webcast is available at either the company or individual level, and an offering that extends the general webcast to include a follow-up one-on-one discussion with the newsletter authors is also available.

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Contact Marc Altschull
maltschull@actrisk.com

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We asked over 250 insurance executives which risks that they thought were the most dangerous to insurers for 2022. This is our take on what emerged as the top ten out of that exercise. We think that it is important for you to see what others are thinking here so that you can compare it to your top risks.

ORSA Rides the Elevator Page 10

What should you say in an elevator speech about your ORSA? This article suggests seven points that you should definitely touch upon if you only have 3 minutes to talk about your ORSA.

Moderately Adverse Conditions

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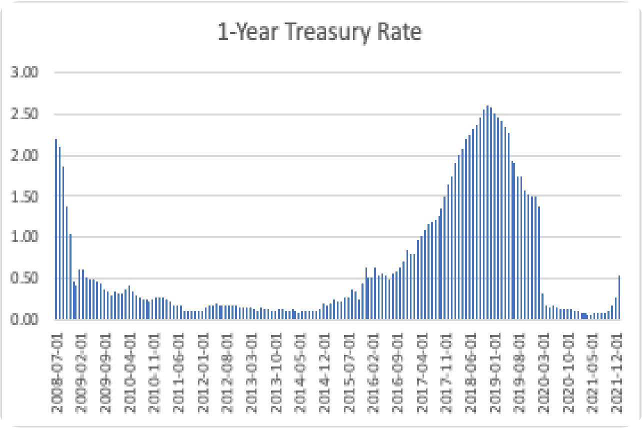
Interest rates have been at unusually low levels for the past several years. Here we challenge the way that regulators are thinking about the current situation as we approach Cash Flow testing of interest sensitive business.



Bacterial Antimicrobial Resistance Page 12

This piece is a challenge for you to consider something that is likely not yet on your risk register. Could the spread of bacteria with resistance to antibiotics have an impact on your business plans? We provide some questions that you might ask as well as some preliminary answers.

Ten Most Dangerous Risks for Insurers

These past two years have taken us all to school on the true extent of the power of natural risks. But things are slowly coming back and though we missed doing this survey last year, that is true of this Most Dangerous Risks for Insurers poll as well.

This year we had record participation with over 250 insurance professionals taking part. This is the fifth iteration of this poll and 2022 shows some consistency along with some very new risks. Inflation, Employee retention and Ability to hire new employees are three new risks to the top of this poll, but they should not be surprises.

These responses suggest that many managers see the insurance industry in the thick of the same societal and financial problems that are gripping all businesses. Workers are in revolt, but they are not protesting or organizing, they are simply leaving their current employer to seek out the right job and work/life balance for them.

So here is our list of the top ten Most Dangerous Risks to Insurers for 2022:

1. CYBERSECURITY AND CYBERCRIME

Previously ranked #1 and was a Top 5 risk all five years of this survey

Many insurers changed their policy wording to exclude or severely limit cyber exposure because they think of this as a very dangerous and unpredictable risk. Others started offering stand-alone cyber cover at least in part because it may be uncorrelated to other insurance lines. Some of that later group have experienced a spurt in claims that may have led them to also rate this the number one risk.

2. INFLATION

Up very sharply - Previously #52

Prices are rising faster than they have since the 1980s in most of the developed world. Insurers will be hit with a double whammy as the real value of invested assets decays and the cost of doing business and claims costs increases at the same time.

3. EMPLOYEE RETENTION

Not on the list previously

The Great Resignation makes the headlines. COVID seems to have accelerated the timeline for the inevitable wave of Boomer retirements. Also concerning are the numbers leaving due to health care burnout and caregiver responsibilities. The problem for insurers is figuring out how to respond to the massive loss of experience.

4. IT / SYSTEMS AND TECHNOLOGY GAP

Up Slightly from #5 last time and was a Top 5 risk all five years of this survey

The COVID driven move towards work from home has further illuminated the advantages for businesses that have mastered the technology to deal remotely with their current customers and to attract new customers through their tech platform. Insurers leveraged their business continuity plans to transition to work-from-home successfully.

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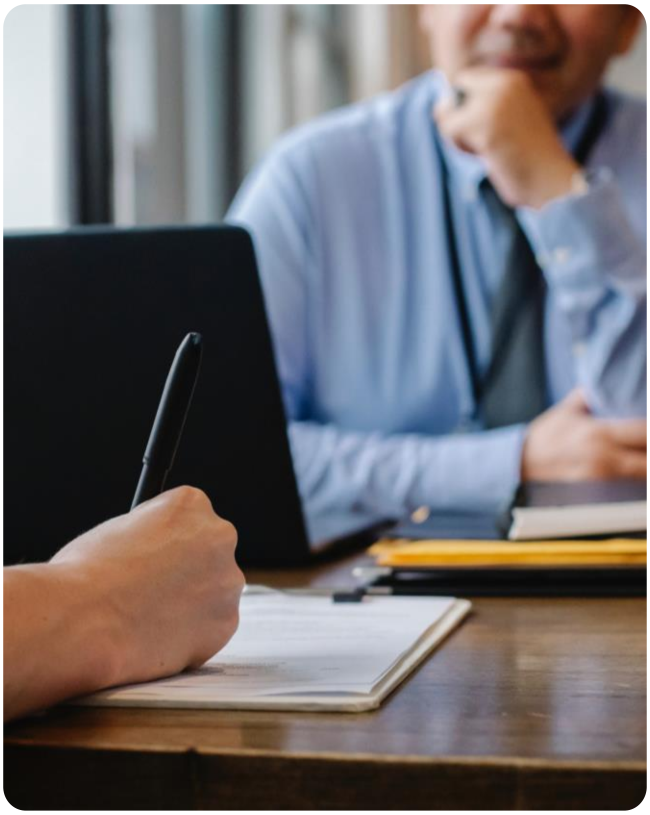
Ten Most Dangerous Risks for Insurers



6. EMERGING RISKS

Up from #10

We are even more sure now after two years of not solving COVID that what we don't know can hurt us. Something out there that may or may not be on anyone's list could be the next big issue and we now are very willing to acknowledge that.

7. PRICING AND PRODUCT LINE PROFIT

Down from #3 and was a Top 5 risk all four prior years

Insurers writing Life and Annuity business as well as writers of long tailed Casualty business see problems coming with inflation and the resulting pressure on interest rates. The pandemic's focus on older ages and those with co-morbidities has limited the claims impact on life insurers, but new variants and long-COVID could have repercussions for disability and health lines.

5. ABILITY TO HIRE NEW EMPLOYEES

Not on the list previously

This is the flip side of weak employee retention. With the pool of open positions exceeding the number of qualified candidates, more and more companies will be forced to start prying away experienced employees who were not in the market and so the cycle spirals on and on. Many workers are trying out the gig economy. If stimulus tightening leads to a recession those workers may re-enter the workforce for company jobs.

8. LEGISLATIVE AND REGULATORY

Down from #4

Insurers are still struggling with some past changes such as Principles Based Reserving and Long-Duration Targeted Improvements and are worried about future changes especially related to alternative investments and Governance, Risk and Compliance regarding new disclosures, new regulations and new laws. All of these changes require technical staff expertise to resolve which is in short supply (see #3 and #5 above).

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Ten Most Dangerous Risks for Insurers

9. RUNAWAY FREQUENCY OR SEVERITY OF CLAIMS

Up moderately from #19

Swiss Re estimates that 2021 had the fourth highest natural catastrophe claims since 1970. And Life insurers say that they are starting to see higher death claims driven by COVID, especially from Group Life Insurance. Claims from mental health, opioid and alcohol abuse have also risen during the pandemic.

10. PANDEMIC

Up sharply from #57 last time

Events of the past two years have shown that modern medicine has made tremendous advances in humankind's ability to respond to a Pandemic, but there is room for significant improvement. Much as we have seen in previous pandemics, behavioral responses have great impact on results. So far, insurers have not taken major losses from this Pandemic, but that is due more to luck than preparation.

Take a long look at your risk register. How do your top ten risks stack up against these ten? What is your thinking to support the differences?

This list is a good gut check. These risks are at the top of mind for at least 250 insurance executives. Can you afford to ignore any of them?

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Moderately Adverse Conditions

We have generally used a continuation of the current environment as our base assumption. But now, with the encouragement of the NY DFS, that is being treated as worse than "Moderately Adverse" scenario. Insurers need to develop a robust set of stress scenarios to test reserve adequacy that include continuation of current conditions and a variety of variations in experience, not just interest rates.

As interest rates have fallen, the term moderately adverse conditions (MAC) has become a hot button surrounding asset adequacy testing for life insurers. For 2020 filings, the New York Department of Financial Services (DFS) provided a safe harbor replacement that grades the yield curve to a higher level than current rates for the level scenario and told insurers they would need to pass it. This implied that the level scenario for 2020 could be considered beyond moderately adverse.

Rates rose during 2021 enough to negate the safe harbor scenario but passing level and down scenarios remain a challenge for many insurers. In the American Academy of Actuaries regulatory ALM survey from 2020, respondents were split about whether the baseline level scenario was beyond moderately adverse, and no standard convention has emerged since then.

When you ask most actuaries, they focus on the level of interest rates not being likely to remain so low for the entire testing period. While economists could debate the NY approach and the actuaries' perspective, the focus of this short article is how actuaries could use their internal models to add value at their firm by better understanding the risks and rewards specific to their block of business.

The simple Reg 126 interest rate scenarios designed 30 years ago need to be expanded or replaced. The NAIC could require companies to allow negative rates at levels recently seen elsewhere in the world. A climate change scenario could incorporate lower economic growth rates, aging demographics and low fertility rates. Forced immigration and its ramifications due to heat and sea level rise will be key considerations in that narrative. This is how the ORSA regulations could be useful. Liquidity and defaults should be stressed, either using a moving scale or applied as an instant recession button (what happens if we have a recession on the first day of a scenario).

Actuaries and other modelers need to up our game and test scenarios beyond interest rates. We act as economists at our firms but often have only a course or two from college and six months of study during our credentialing process. Taking a broader approach will be more useful for strategic planning purposes.

What methodologies would add value to the insurer? Stochastic scenarios can be useful, but let's focus on narrative-based deterministic scenarios that improve decision making. What story do you want to tell your CEO or board?

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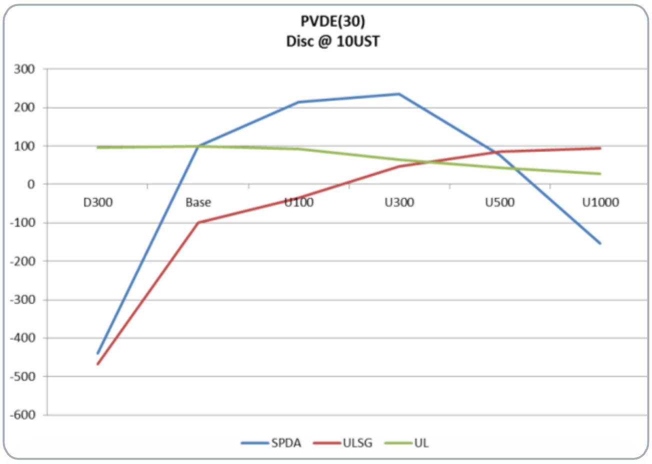
Moderately Adverse Conditions

Let's start with interest rates and then expand the discussion.

In a paper written by the Society of Actuaries (2015), a model office was built and six interest rate scenarios designed to tell a story. For example, if a down scenario is bad for a block of business you don't need to run multiple scenarios to show that. Pick scenarios that provide nuance to the story. Here is an example from that paper.



In the figure, PVDE(30) is the present value of distributable earnings (statutory income, after taxes, after change in target surplus), discounted over 30 years at the 10 year Treasury rate. It is a metric to reflect current value. Base is the level scenario normalized to 100 (or -100), D300 means immediate pop down 300 bp, U100 is pop up 100 bp. SPDA is single premium deferred annuity, UL is universal life, USLG is universal life with secondary guarantees.

The shapes generate a much easier discussion with senior management or a board that may not have a strong modeling or mathematics background.

You could change multiple assumptions at the same time to simulate a cluster of risk events occurring. Creating a narrative constructs a scenario that ties together many features. One economic growth scenario set (Hillebrand/Closson 2015) looked at energy prices (low/high), economic growth (weak/strong) and geopolitics (global harmony/disharmony) to create eight scenarios, with probabilities attached.

You need to create a picture that helps senior management make decisions. For interest rate scenarios in today's low environment, for a going concern business these scenarios might make sense:

- Pop down 3% with no floors (rates can go negative in all scenarios)
- Level
- Pop up 3%
- Add additional Pop up scenarios until you have hit a maximum value (perhaps up 1% 3% 5%)
- Finally, create at least one scenario with a value lower than the Base

Other assumptions can also be tested. Examples might include single year scenarios that test liquidity as well as solvency (Ernest Hemingway had it right in The Sun Also Rises. "How did you go bankrupt? Gradually, then suddenly.")

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Moderately Adverse Conditions

- Equities down 50%
- Mortality or morbidity higher by 1%
- Asset defaults double
- Your top reinsurer is unable to pay claims

Finally, some narratives might be built that stress multiple assumptions or lines of business.

- Recession – war in eastern Europe expands into the Middle East, with oil prices triggering inflation and central bank solutions ineffective
- Climate change follows SSP3-7.0 narrative, increases sea levels by X inches, storm intensity by Y% and drought – food insecurity becomes part of daily life for many

In addition to asset adequacy testing and Own Risk Solvency Assessment (ORSA), another source of scenarios is banking regulations. Their time horizon is quite short and they focus on testing single risk deterministic scenarios, but the narrative must be consistent. For example, how would a drop in GDP impact defaults, inflation, interest rates, or even mortality and morbidity assumptions? Where would you find liquidity? It's like your company had a heart attack – would you survive? Becoming aware of banking scenarios and consciously deciding to pick out some pieces to manage your internal ALM and ERM needs could be useful.

Moderately adverse conditions are defined in (the soon to be effective) ASOP22 as those "that include one or more unfavorable, but not extreme, events that have a reasonable probability of occurring during the testing period." Judgement is needed, but the focus is on adding value to your company, so there is no need to do anything but test actual risk exposures.

Modelers can add value through a well-thought-out set of narratives that will aid decision making. Managing risks is just as important as creating returns.

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ORSA Rides the Elevator

Quite a large amount of work goes into performing an Own Risk and Solvency Assessment (ORSA). Which leads to the tendency to make the ORSA story very long to reflect all of that effort appropriately. But a lengthy story is really not effective or necessary, at least not unless you are the person who is officially reviewing the work. If you are a member of the executive team, or of the board or a Rating Agency analyst, you really only need a brief summary of the findings, something like an Elevator pitch, in fact.

So, what might an ORSA elevator pitch sound like? I would start with two sentences:

1. We looked at each of our most dangerous risks in the eye and found that we would survive any realistic disasters that they might cause.

2. We have a lively risk management system that will keep things that way and will keep us informed as the risks change and as our risk-taking evolves.

And if your audience gets off at the very next floor, you have made your most important points. Everything else in the ORSA Report is details that support those two points.

If you listener is going further, then you should be ready with just three or four more sentences giving more details on each of those points.

3. For testing your resilience to realistic disasters, the best thing to say would be to describe the disaster that you found was the most troubling.

4. Tell what you had left after the losses from the disaster and why that is enough for the company to continue. (This would be a discussion of your risk appetite.)

5. Explain how risk management helped to reduce losses under that scenario.

6. Explain which risk management activity is actually the most significant to the achievement of company goals.

Each one of those points can be covered in a paragraph if written out, making this elevator speech about the ORSA less than two pages long. This could be expanded to cover the top several risks.

For many audiences, that might well seem be enough detail about the ORSA. Regulators require that the ORSA report be focused on Solvency, but very few insurer boards or executive teams are otherwise highly concerned about the risk of insolvency.

But reporting on the ORSA can also be an opportunity to communicate how the ERM program is working to support the objectives and strategies of the company.

Unfortunately, too much of risk management communications falls under a compliance approach.

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ORSA Rides the Elevator

With the ORSA, it is felt that the Summary Report MUST be fifty pages or more long and if the regulator is going to get a fifty-page report, then the executive team and the board MUST sit through a long presentation that covers all of that.

But in my years of assisting insurer management teams with developing new ERM programs, the most common request was that it would also have some practical value to the company management processes.

The practical value of ERM and of the ORSA comes from the degree to which the purpose of the ERM program can be seen to fit with the company's strategic objectives – the Alignment of Risk Management with Strategy. The ORSA is a communications opportunity.

Management teams find ERM to be an uncomfortable fit whenever ERM starts to conflict with objectives and strategy. This frequently happens when an ERM program is installed that is targeted to align with some version of outside "best practices" rather than with the fit to the company.

We use the word "fit" here. You have to realize that while you can see if clothing "fits" in a moment by simply trying it on. Assessing fit of a core management process like ERM also may require trying it on. And living with the ERM program for several quarters at the very least if not a full year.

So, a final thought about what to say in an ORSA elevator speech: a statement about the fit of the ERM program to the rest of the company operations would be a very valuable addition. No matter how good the findings of the current ORSA stress tests, if the ERM program doesn't fit the company, it will sooner or later be abandoned and higher risk taking could result.

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Bacterial Antimicrobial Resistance

The hope is that our newsletter will engage you in new ways with risk and think over longer time horizons about a future that may be new to you. We are not experts in everything but bringing up a topic will add to the tool kit insurers are considering. Bacterial antimicrobial resistance (AMR) is such a topic, one that is growing in plain sight but does not receive much attention. The medical community has had tools to deal with microorganisms like bacteria and viruses such as antibiotics, antifungals and antivirals for many years. If you get an infection, it normally is not a big deal. Unfortunately, this has lulled us into a false sense of security.

Bacteria and viruses are often confused. A virus can't survive without a host, is smaller and consists of a protein coat around either DNA or RNA genetic material. COVID-19 is a virus. Coronavirus is typical in that its RNA randomly mutates, periodically making changes that create a new dominant variant. A virus survives longest when it mildly impacts its host but doesn't kill it, allowing it to spread to other creatures.

Bacteria, on the other hand, are larger than viruses and are independent living organisms that use DNA to reproduce. They are very hardy and often specific to an environment like hydrothermal vents deep in the ocean or in your intestine (gut). Bacteria can help or harm, depending on the circumstances. Mutations occur during replication or exposure to a mutagen (e.g., chemicals, radiation).

Mutations occur randomly, with successful ones building resistance to drugs that previously defeated them. Harmful microorganisms are called pathogens, and antibiotics were developed following the discovery of penicillin by Alexander Fleming in 1928. These wonder drugs were very successful, but bacteria are catching up by evolving to evade existing drugs.

Developing new antibiotics is very challenging, time consuming and expensive, often without success. In this game of adjustments, we are standing still and the bacteria continue to evolve. While medicine has had great success, bacteria are battling back and we are starting to lose. It is time to resist this trend with a plan.

The implications to our daily lives are material. In the not so distant past a cut or scrape that became infected could be fatal. Rates of survival to adulthood are important metrics even now in some locations without ready access to antibiotics – increasing antimicrobial resistance make these trends globally important.

Much of the strongest resistance is currently found in hospitals. This leads to a growing dilemma. Who wants to have a voluntary procedure that could be deadly? Everything from knee replacements to Botox injections becomes risky. And what mother would allow their child to play football or rugby with such a risk on every field or pitch, knowing that a simple abrasion could be deadly?

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Bacterial Antimicrobial Resistance

Insurers care about AMR for several reasons. It impacts health insurers as claims increase. It impacts life insurers as mortality increases at all ages and longevity decreases. It impacts all institutional investors as a population with shortened lifespan looks at investments in housing and other purchases in new ways.

Bacterial antimicrobial resistance is a topic that insurers should monitor and encourage research into building new tools to fight these pathogens.

As this newsletter was being written, the Lancet published a thought-provoking paper on bacterial AMR (The Lancet Feb 12, 2022). The paper notes the regional differences in this global problem. In an area like sub-Saharan Africa their suggestion is to expand availability of antibiotics, while in south Asia (think a little broader than India to Malaysia) they recommend restricting antibiotics as they are overused. While forms of pneumonia and staph infections were the leading problem bacteria, a recent pathogen commonly found on the battlegrounds of Iraq and Afghanistan, A baumannii, is causing problems. Permafrost is a likely future topic for this newsletter, but one concern is that ancient bacteria unknown today could melt out of the frozen tundra and be released back into the environment.

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