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SECTION

Reinsurance News

ISSUE 94 • JULY 2019

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Reinsurance News

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To join the section, SOA members and non-members can locate a membership form on the Reinsurance Section Web page at <http://www.soa.org/reinsurance>.

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Call for articles for next issue of *Reinsurance News*.

While all articles are welcome, we would especially like to receive articles on topics that would be of particular interest to Reinsurance Section members.

Please email your articles to
Ronald Poon-Affat (rpoonaffat@rgare.com) or
Dirk Nieder (nieder@genre.com).
Some articles may be edited or
reduced in length for publication purposes.

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Chairperson's Corner

By David Vnenchak

The mission of the Reinsurance Section is “to advance the reinsurance profession through the identification and communication of emerging issues and trends for the global reinsurance community through education, research, professional development and networking.”

On any given day, the Reinsurance Section Council and the many volunteers of the Reinsurance Section are busy focusing on a number of different initiatives which aim to deliver on this mission statement. These activities include (just to name a few) drafting and producing *Reinsurance News* and a number of podcasts, planning and developing the Reinsurance Seminar and supporting the many research projects funded by the Reinsurance Section. Regardless of the task, our volunteers are constantly scanning the environment and working hard to support the advancement of the reinsurance profession for our section members.

I'd like use this “Chairperson's Corner” to highlight one of the more unique initiatives that the Reinsurance Section has undertaken to advance this mission. It's called the LEARN initiative. Some of you may be wondering what LEARN is or even stands for, so let me start with a little history lesson.

THE HISTORY OF LEARN

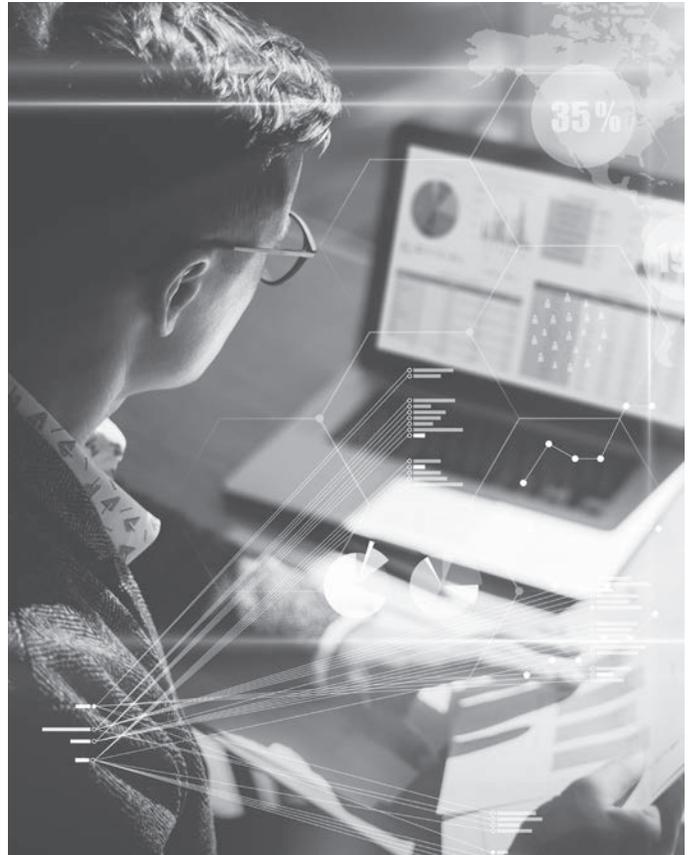
LEARN stands for Life Education and Reinsurance Navigation. The LEARN program was established in 2009. The goal of the program was to provide continuing education to U.S. state regulators and staff on the topics of life and health reinsurance.

The idea for LEARN was the vision of then Reinsurance Section Council member, Ronnie Klein, who identified a unique roll that the section could fill in the industry. The concept was born in the experiences of life reinsurance actuaries throughout the early XXX financing era. As actuaries were working with regulatory staff to implement these treaties, they identified the need for a more robust framework of life reinsurance professional development for some employees of state DOIs. In general, regulatory staff including analysts, finance staff and forms reviewers seemed more comfortable with shortterm P&C reinsurance concepts than they were with the nuances of longer-term life insurance and life reinsurance. As with many state

agencies, department of insurance budgets are tight and must be deployed across a wide variety of activities. Thus there are not always excess funds available to send staff to industry events or to bring continuing education programs in house. LEARN was born as a way that reinsurance industry professionals could provide a continuing education experience to these staff members at no cost to the individual state DOIs.

The program formally launched in 2010 with three presenters (Jeff Burt, Sean Burt and Jeffrey Katz) who developed the program and all the materials covering fundamental topics impacting life and health reinsurance. Once meetings were set up, the LEARN volunteers worked with each state DOI to tailor the content and agenda to the specific information that the regulators felt would benefit their staff. A typical LEARN presentation could be as short as a couple of hours or as long as a full day. A sample of the basic topics which were initially covered include types of reinsurance and reinsurance treaties, risk transfer, credit for reinsurance, reserving for reinsurance, and cash flow testing for reinsurance.

Over time additional topics were added to the presentations at the request of state DOIs, including: certified reinsurer status/collateral reform, AG48 and PBR. In addition, an entire section



was added on health care insurance and reinsurance when the Affordable Care Act took effect.

In addition to providing professional development opportunities for regulatory staff, the LEARN program soon stretched beyond its initial mandate and was transformed to provide reinsurance fundamentals to other audiences, including local actuarial clubs. The LEARN material was also used to develop the agenda and presentations for the Introduction to Reinsurance Boot Camp and later the Life and Annuity Reinsurance Seminar.

The Reinsurance Section has doubled their efforts this year to reach out to local actuarial clubs around the U.S.

In recent years, the program was supported mainly by only two volunteers, Michael Frank and Larry Stern, who provided coverage of a myriad of reinsurance topics to interested regulatory agencies.

THE FUTURE OF LEARN

In 2018, Emily Roman, Mike Kaster and Larry Stern worked to reenergize the Learn initiative. They relaunched outreach efforts by first increasing the number of volunteers. The section is happy to report that we have added a slate of eight highly sought after presenter volunteers to carry the LEARN torch into the future. These volunteers include Mike Mulcahy, David

Addison, Mark Costello, Mike Kaster, Larry Stern, Ben Keslowitz, Thomas Colbrook, and Donna Megregian. Thanks to these eight for contributing their time to be part of such an important industry enterprise.

Once the volunteers were in place to support LEARN efforts, focus shifted to updating the materials and working with SOA staff to reach out and promote the LEARN program to numerous regulators. As of early 2019, we have set up or are working to set up sessions in eight different states—Wisconsin, Colorado, Louisiana, West Virginia, Maine, Kentucky, New Mexico, and Texas.

Beyond the state regulators, the Reinsurance Section has doubled their efforts this year to reach out to local actuarial clubs around the U.S. and have found interest at most for some type of reinsurance content or support.

The Reinsurance Section Council is excited about the prospects for the future of LEARN. If you work for an entity or organization that you feel may benefit from a LEARN session, would like to understand more about the LEARN presentations or are interested in volunteering to support this initiative please do not hesitate to reach out to me or another member of the Reinsurance Section Council. ■



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Letter From the Editor: Innovation’s Tipping Point—When Clients Are Satisfied With “Good Enough”

By Ronald Poon-Affat

Over the past two decades, innovation has become rife with examples of both runaway successes and heed-worthy cautionary tales. One of most intriguing of these tales was told in a book I can highly recommend: *Bad Blood: The Theranos Story, From Boom to Bust*, by Pulitzer Prize-winning reporter John Carreyrou. This gripping page turner, which won the 2018 Financial Times and McKinsey Business Book of the Year Award, traces the swift rise and even swifter fall of Theranos, the high-flying blood test startup founded in 2003 by 19-year old Stanford dropout Elizabeth Holmes.

Theranos had promised to be able to run hundreds of common blood tests with just a few drops of blood. On the strength of this promise, it swiftly raised more than \$700 million in investment capital and by 2014 had a valuation of \$9 billion. Much of this was due to Holmes’ ability not just to communicate the excitement of her vision, but also to play upon the weaknesses of human psychology. She successfully created a Pied Piper effect among sophisticated investors who really should have known better. Many excitedly invested in her vision without undertaking any due diligence, and even moved to discredit any who dared blow a whistle.

However, once the *Wall Street Journal* reported that Theranos had vastly overstated its claims and capabilities, and that its practices could be putting lives at risk, the company crashed quickly.

Maybe one day a scientist will deliver on Holmes’ disruptive vision of simplified blood tests. But right now, the main challenge of any simplified medical tests is that doctors and patients will not be likely to try an innovative technology such as Theranos’ until it can be proven without a doubt to be least as good as current blood-draw practices.

WHEN DISRUPTION OCCURS

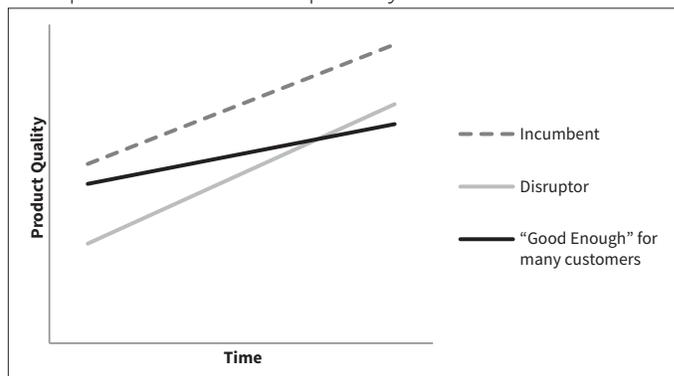
I had a “eureka” moment when I read Louis Rossouw’s article in the July 2017 issue of *Reinsurance News*. In his article “Disruptive Innovation—Coming to Insurance Near You,” Rossouw, head of research and analytics for Gen Re’s Cape Town, South Africa office, suggested that a nimble entrant into an incumbent business typically succeeds by offering a cheaper or even inferior product and/or service that targets a mature, developed segment.

Rossouw argued that as time goes by, the new product or service may improve its quality while keeping costs low. Once it becomes a “good enough” offering that is both cheaper and more convenient, it becomes disruptive and begins to lure customers from incumbents.

To me, this is the tipping point—the point at which a series of small changes or incidents becomes significant enough to cause a larger, more important change. This is when true market disruption occurs.

To illustrate this point, Rossouw put forth the graph in Figure 1 (bound to be a hit with actuaries). The graph illustrates a model of disruptive innovation that was first developed by Clayton M. Christensen and two of his colleagues in a 2015 *Harvard Business Review* article. The graph illustrates the notion that a disruptor launches an inferior product appealing to segments of the market overlooked by the incumbent. As the inferior product improves to a “good enough” point for customers to start using it, the incumbent provider faces potentially losing significant market share to the disruptor.

Figure 1
Disruptive Innovation Graphically



Think back to early first encounters with disruptors which are now incumbents themselves: logging onto *Amazon.com* back when it only sold books; setting up your first digital running watch; booking an Uber (oh, those long delays), clicking into



Netflix's early and tiny selection of old movies; or reserving an Airbnb (I still have not been able to book a place I like). I'm sure you can think of even more examples. But, as the 1960s Virginia Slims ad quipped, "We've come a long way, baby." All of these disruptive products and services provided an alternative that might have been a good bit less than optimal, but people were happy to settle for an inferior product that gave some of what was wanted. Over time, and with the goodwill of patient and curious early adopters, these quirky products and services developed to the extent that they became incumbents themselves.

THINKING OUT OF THE BOX

Conventional wisdom holds that 9 of 10 new startups fail, and for InsurTechs, statistics are even more depressing. To date, InsurTechs have not successfully disrupted traditional insurance markets. Could they be offering the wrong products? A more interesting question might be: what kinds of products should InsurTechs sell? Conventional wisdom also holds that the products that do well are the products customers want.

I was very encouraged to read about an entirely new product aimed at adventure lovers. The product, short-duration event-based life insurance, will insure these individuals' lives when they need it the most.

It is now possible to purchase such policies. The cover's duration, which is priced affordably, ranges from 24 hours to 30 days, and enables people to pursue their passions while alleviating the fear that exists during times when they are inherently more at risk. Think about what jitters you might have while trekking up Mount Kilimanjaro or running your first marathon; as most policies exclude coverage for extreme sports, part of planning for these adventures could include signing up for this "just in time" insurance product.

I have heard several life actuaries voice concerns about 24-hour insurance products: they fear anti-selection and a shift of the paradigm, from what is inherently a deterministic risk (mortality) to a stochastic one. However, the possibility of buying short term insurance might mitigate any concerns about the insurance company's long-term viability.

CONCLUSION: INSANITY IS REPEATING THE SAME MISTAKES AND EXPECTING DIFFERENT RESULTS

Insurtechs have also not been able to make a real dent in the traditional insurance market. That being said, one standout success story is a product that allows clients to nominate a charity to which the insurer will donate if underwriting profits are favorable. The link between purchasing insurance and contributing to a social good is designed to create a "feel-good" experience.

Products such as the "just in time" cover and/or links to charity might seem inferior to a sophisticated Universal Life product that includes longterm care and critical illness riders. However, if the product meets a customer need, it might just be good enough to achieve disruption. ■

The views expressed are solely his own and do not reflect the views of either his employer or the Society of Actuaries.



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Q&A with Marjorie Ngwenya, Past President of the IFoA

By Sonia Sequeira

Marjorie Ngwenya, FIA, is past president of the Institute and Faculty of Actuaries (IFoA). She has worked across a number of disciplines including strategy, reinsurance and consulting. Marjorie was the first IFoA President based outside the U.K., the third female and the first person of color. She is based in South Africa where she serves as a freelance consultant and nonexecutive director on a number of boards in the insurance and not for profit sectors. She is the executive director at African Leadership University's School of Insurance.

Marjorie's reinsurance experience includes marketing, product development and risk management.

SS: The insurance industry is grappling with vast amounts of change. In this context, what's your view on role of the reinsurer?

MN: Reinsurers continue to play a vital role as global citizens. The principles of risk pooling that gave rise to 'modern' reinsurance contracts in Europe in the 1300s remain valid today.

Reinsurers are supporting primary insurers, helping to manage concentrations of risk and giving insurers more flexibility to provide cover across a range of risk areas.

Those insurers, less constrained by the heavy burden of risk, are also better positioned to try new ways of working to ensure they remain competitive and can provide cover even at the more extreme end of the market.

The role of the reinsurer is often more prominent when natural hazards give rise to high levels of insured losses. In 2018, tropical cyclones caused billions of dollars of damage across the globe, including two direct hurricanes making landfall on the U.S. mainland. The estimated total insured losses for Hurricane



Marjorie Ngwenya, MSc, FIA, is past president of the Institute and Faculty of Actuaries.

Michael are \$1bn and \$5.5bn for Hurricane Florence, with total economic losses \$25bn and \$24bn respectively.

Reinsurers not only relieve the burden on the direct risk providers but also in turn bolster the resilience of economies. They provide a backstop, which allows insurers to explore new opportunities and enable access to insurance where it may not previously have been available.

SS: You describe reinsurers as global citizens. Could you give an example of where their expertise helps to provide solutions?

MN: Reinsurers support diverse participants in the industry and to that end, have a broader perspective. By observing a variety of different practices across insurers, it is possible to identify and promote cutting edge practices.

In its recent digital strategy, Hannover Re pointed to the need by primary insurers for automated decision-making but acknowledged that not all insurers are able to build these systems on their own. Cost, capability or availability of data can all be barriers. Reinsurers often have access to the scale and expertise to help provide solutions in a way that benefits both sides.

APA Insurance is an insurance provider in Kenya and Uganda, underwriting general insurance. The company won a Government

of Kenya tender to design and deliver large-scale insurance to rural farmers in arid and semi-arid areas of the country.

APA's agriculture insurance products cover smallholder maize and wheat farmers against poor yields due to poor weather and natural catastrophes. They also covers farmers for crop damage as a result of deficit or excesses in weather conditions such as temperature, sunlight, wind speed, or rainfall resulting in losses during the full crop growth cycle.

Farmers with as little as one hectare of land can use mobile handsets to insure themselves against extreme weather conditions. The insurance was informed by research delivered by the International Livestock Research Institute, using satellite-imaging processes to inform algorithms to assess loss and make payouts.

The original solution was based on satellite imaging and cattle count. Improvements that have since been made to the model build on this by adding bundled products built around the supply chain of inputs and markets to deal with price sensitivity.

APA sells traditional insurance such as asset protection and life insurance alongside its agricultural products. It also bundles the product through association with credit products and supply credit methods such as seed and fertilizer in-put providers. Since it started delivering this insurance in 2014, APA has covered over 5,000 Kenyan and Ugandan farmers with crop and animal insurance to date.

APA's ability to create new and accessible insurance products addressing the risks associated with agriculture was supported by Swiss Re. Often, the reinsurers' role in these areas of innovation is less visible but crucial for the insurer to be able to diversify risk.

SS: What can reinsurers do to support innovation in the insurance industry?

MN: When we think of change in the context of the insurance industry we can tend to focus on evolving regulations or the uncertain political and macro-economic environment. How will we approach the IFRS17 treatment of reinsurance contracts? How will the next election impact on our economy and our business?

In the unpredictability of change lies many opportunities and to keep the industry relevant, innovation is vital. The possibilities for disruption are numerous; leveraging advances in technology, gleaning new insights from analytics and catering to adapting consumers needs, to name but a few. Reinsurers are well placed to partner with industry players.

Digitalization is having a transformative effect on the market. Reinsurers realize they can't be complacent and many are looking for ways to harness new technologies to create efficiencies and improve processes.

InsurTech has been the biggest disrupter and has spawned a range of InsurTech start-ups. Many reinsurance companies have seen the opportunity to support these start-ups, providing expertise and funding. In return, InsurTechs can offer new ideas such as different ways to use data to better model risk and customer behaviour.

Reinsurers not only relieve the burden on the direct risk providers but also in turn bolster the resilience of economies.

In February, Nassau Re announced plans to establish an InsurTech incubator to help start-ups, based in Hartford, Connecticut. The project is part of a wider initiative by the city to become an InsurTech hub. Nassau Re is committing significant resources to help start-ups with practical considerations like office space, business development and networking within the industry.

Gen Re launched its NOW app which uses facial analysis technology to offer a novel way to purchase life, hospital cash or accidental death insurance. The technology works by uploading a selfie from a smartphone that provides an estimate of the user's age, gender and BMI. Using this expedited analysis means that policy can be issued to applicants in minutes. Through the app, policyholders can also manage aspects of their insurance.

The NOW app is powered by Lapetus Solutions' JANUS facial analytics technology. It is being tested in a variety of languages and it is one of a suite of Insurtech-based solutions that Gen Re is currently developing in collaboration with technology companies around the world.

These are just a couple of examples but there are many others where reinsurers and InsurTech start-ups are working in partnership, to the benefit of both sides.

We are well aware that new technology and innovation introduce new levels of risk. In 2018, the IFoA's Risk Management in a Digital World Working Party conducted a survey of insurance and risk management professionals. 80 percent of the respondents thought that InsurTech would have a significant impact

on the industry, but only 16 percent thought that they or their colleagues had the right skills to assess the accompanying risks.

Risk assessment is a crucial part of the insurance ecosystem and it's important to create an environment where Insurtech solutions are subject to a robust assessment process. To this end, the working party released the report, "Improving the success of InsurTech opportunities."

SS: What role did reinsurance experience play in your own career?

MN: My experiences working for reinsurers provided significant development opportunities, not only from observing different practices between companies but also learning from exposure to diverse geographies.

I started my career in consulting, learning how to manage projects and to interact with clients. Communication, quality and efficiency are heavily emphasized in the advisory world. These fundamental skills served me well in a reinsurance context where I was dealing with clients' commercial needs.



I like to think of reinsurers as global talent incubators. The global footprint of many reinsurers offers the opportunity for career mobility. Many of these companies also have in-house "universities" that offer a bespoke business school experience.

I am currently championing ALU School of Insurance, which was created to meet the need of Africa's rapidly evolving need for insurance solutions for the 21st century. Africa has long been the most underinsured region of the world, but with the fastest growing population in the world, a quickly emerging middle class and burgeoning new economies. It is the next frontier for insurance and we want to prepare students and professionals from across the continent to address the need.

Swiss Re is the anchor partner of the initiative supporting the school in its mission to attract and empower talented individuals, and develop them into leaders who can pursue meaningful careers in a vibrant and growing African insurance industry. The end game is high social and economic impact.

SS: Do you have any final thoughts you wish to share with readers?

MN: The examples I have shared demonstrate the continued need for the participation of reinsurers in the insurance industry as well as being an important contributor to public good.

In 2018, the IFoA launched a campaign to explore how actuaries could contribute in helping to meet the United Nations Sustainable Development Goals. In a global call for evidence, we sought input from actuaries all over the world to submit a proposal of how they would address the campaign's key questions. Some of these examples show the vital role reinsurers can play and we would be delighted to receive more through policy@actuaries.org.uk. ■

Sonia Sequeira is media relations manager for the Institute & Faculty of Actuaries. She can be contacted at sonia.sequeira@actuaries.org.uk.

Digital Distribution: An interview with Tony Laudato, VP, Partnership Solutions for Hannover Re US

By Sevilla Dees

Tony joined the Hannover Re Group in July 2012 and is currently leading the Partnership Solutions Group that supports insurance carriers' products, web, mobile and digital strategies that are focused on the demands of today's consumers and reaching new markets. In addition to working with carriers, the specialized team works with emerging, high-tech distribution companies and InsurTech players, vetting their technology and helping them gain access to insurers that want to modernize the life insurance sales process, products, risk assessment, client engagement and back-end analytics.

With almost 25 years in the insurance industry, Tony has a varied background in product development, pricing, risk management, distribution, consulting, and strategic planning.

Prior to joining Hannover Re Group, Tony served Chief Actuary for The Newport Group and Chief Product and Innovation Officer for Transamerica's Clark Consulting business. His additional industry experience includes roles such as lead pricing actuary for Lincoln Financial Group's MoneyGuard (Life/LTC/Annuity Hybrid) product and Chief Actuary of Lincoln Financial's Executive Benefits business.

Tony graduated from the University of Hartford with a Bachelor of Science in Applied Mathematics and later taught Applied Risk Theory as part of the university's actuarial science program. He is a fellow of the Society of Actuaries (FSA) as well as a member of the American Academy of Actuaries (MAAA).

SD: Digital distribution is gaining traction in the U.S. life market. What are some examples of digital distribution in practice and how would you characterize them?

TL: "Digital distribution" is often conceived of too narrowly—something akin to "we'll market via social media," with little thought behind it.



Tony Laudato, FSA, MAAA, is vice president—Marketing for Hannover Life Reassurance Company of America.

But in reality the use of digital has multiple applications right through the whole sales process. This can be broken down into what I would characterize as three main areas.

Firstly, there is the question of funnelling new customers into the sales process—getting people aware, interested and to the door. The insurance industry has a real opportunity here to supplement its traditional reliance on agents and intermediaries with direct-to-customer marketing—whether that's through paid online ads, targeted social media outreach, or any other manner of digital and online engagement.

However rather than this being a one-off initiative, long-term success depends on making a virtuous cycle out of it. Any company that moves into digital sales and marketing in this way will find themselves with an influx of new data—this data then needs to be stored, analyzed and used in a sophisticated way to inform future marketing, in terms of who to target, how and when. This is an ongoing process and firms will need to put some effort in to create this ability over time.

Secondly there's the sales process itself—the insurance industry is still fairly archaic in that this can often involve reams of paperwork stuffed to the brim with incomprehensible or irrelevant detail (from the customer's point of view). Embracing digital distribution here means giving new customers the ability to sign up to a policy in around five minutes maximum, via a

simple, slick and intuitive mobile app that doesn't overload the user with information.

Making this process flexible is crucial—modern consumers frequently switch between devices. It needs to be a multi-channel affair, with the ability for the customer to hop between texts, app, desktop and so on. A single solution designed for one channel (which could become outmoded in time) isn't enough.

Thirdly—and most often overlooked—is the role digital can play in engaging, retaining and upselling to existing customers, so those who are already through the door. One example of this is what we call “Reciprocal Intelligence,” whereby instead of the data flow being entirely one way (from customer to company), the insurer gives something back.

For instance, if a consumer is using wearable apps to monitor their fitness levels for a policy, the insurer should provide information back to them about how they're doing—e.g., if their

average resting heart rate has improved, or about the level of subsequent health risk that comes with certain lifestyles.

The possibilities for better and more regular engagement with customers via digital are wide ranging.

SD: What would you say are some common misconceptions of digital distribution?

TL: The main misconception is that it's all about *replacing* traditional marketing and sales approaches in insurance, with regard to the same audience of potential customers. In reality, it's an opportunity to *supplement* the more traditional approaches and start to tap into an entirely new set of customers.

The more traditional, agency-based model still works well at engaging and selling to the type of customer it has always favored—wealthier, asset-rich households. However, this pool of revenue is aging and dwindling, and younger, less financially secure generations are far less inclined to purchase insurance through traditional channels. It is in tapping this relatively untapped pool of customers—and thus growing the overall pool of potential revenues—that digital distribution will come into its own.

Another misconception is that digital distribution means direct-to-consumer. It's far broader than this. It relates to digitizing the whole process end-to-end—from improving the sales process through to identifying target audiences—whether that involves a direct-to-consumer marketing element or not.

SD: From what you've seen in the market, do carriers' digital distribution initiatives introduce channel conflict?

TL: Not nearly as much as people within the industry often assume at first.

While it can cause some problems *internally* within an organization, the fact that digital strategies are more direct, and that they by-and-large target a different pool of customers to traditional approaches, makes for minimal natural overlap, significantly reducing the problem.

A few years ago this was a dominating fear, and the main reason behind a lot of companies' reluctance to adopt direct, digital models. But the fear was largely based on the misconception that both strategies would be targeting the same audience. This isn't the case.

On the contrary, embracing the digital side can make the traditional component more efficient and effective. The data and insights generated on the digital side can be used to inform and improve marketing and outreach on the traditional side in a



way that was too prohibitively expensive before. There's more synergy than conflict.

SD: From your perspective, what are barriers to the success of digital distribution?

TL: There are two main barriers. First is the question of technology and infrastructure, of making the investment required to ensure the company has the means to execute these quite unfamiliar, data-heavy digital strategies—whether that be through replacing or upgrading in-house systems, or through partnering with third party technology firms in some capacity.

The second is a bit trickier, and relates to the question of talent and company culture. Fully embracing digital means processing large amounts of data, and then knowing how to use it to maximum effect. This will require hiring people who are tech-savvy and know how to navigate, for instance, social media, or data analytics. The skills and aptitudes involved are quite alien to many insurance firms and it will involve hiring new types of employees at all levels. Any insurance firm that wants to do it entirely in-house will have to, to some extent, become a tech firm—and that's a big cultural leap. There's also the inconvenient fact that insurance is not exactly the first sector that younger tech wizards think of when deciding on a career—firms will need to think about how to make themselves appealing to this kind of talent, and bridge the gap.

SD: There are certainly marketing, technology and process changes that come along with digital distribution, but how does digital distribution affect the carriers' risk profile?

TL: The main hazard from a risk perspective is the loss of the human judgement element when bringing new customers onboard. The digital approach is about automation and volume—what comes through the door is a set of data points. There isn't an agent talking to the customer, getting to know them in a more rounded way.

This is far from an insurmountable problem, but it does introduce the potential for new risks coming on board to not be screened as well as they would be via the traditional approach. It means learning new ways to screen for risks. The main things an insurer needs to understand about new customers are their financial status, their health, and whether they truly need the product in question. This has to be done differently to simply relying on the expert judgement of agents—any digital onboarding process, for instance, needs to incorporate a way of both capturing and assessing this information in a reliable fashion.

This further underlines the point that digital and traditional should be seen as complementary rather than mutually

exclusive—ultimately a human element will always be needed to address this type of risk. The key is finding a way to integrate the two together, so that the digital side isn't just a dumb robot that lets anything through, and to ensure there's an aspect of human intelligence and judgement built in.

SD: How are insurers collaborating with emerging digital distribution companies?

TL: While a few brave souls are going it alone and trying to develop a capability wholesale in-house, the majority are looking for partnerships.

These partnerships broadly fall into two categories. Firstly, there are companies that want to build their own digital capabilities and channels but recognize they don't know where to start, and so they bring in a tech firm to advise and help them to do so.

Secondly, there are firms that don't want to build their own full-blown digital offering and so essentially partner with a tech firm in order to outsource the function. In these cases, the insurtech firm gets 'bolted on' to the insurance company, bringing its own talent and essentially acting as that company's digital department.

The main hazard from a risk perspective is the loss of the human judgement element when bringing new customers onboard. The digital approach is about automation and volume.

The relationship between traditional insurers and smaller insurtech outfits has changed considerably over the last couple of years. Whereas many insurers initially thought they'd be competing directly against a new generation of disruptive fintech startups, a far more collaborative dynamic has now emerged. This makes a lot of sense—the two sectors bring very different-yet-complementary skills and capabilities to the table, and have advantages with different markets and consumer audiences.

SD: How can carriers leverage the technology tools of digital distribution to add more value to their customers and increase engagement?

TL: The aforementioned idea of "Reciprocal Intelligence" is a good example on this front. As well as providing the core insurance service, insurers could provide regular updates to customers

regarding their own data and information—for instance, a message could inform a customer that they’ve reduced their average heart rate by X over Y period, or that their exercise levels have dipped by Z amount.

This could be tied to customer incentives, function as a health warning, or could even connect to policy design through, for instance, targets to reduce premiums. It would allow insurers to engage with their customers on a regular and meaningful basis, in a non-sales-oriented fashion, as opposed to the far more remote, irregular and formal traditional relationship. This in turn would create far more opportunities for firms to educate and inform customers of the benefits of more comprehensive policies, as well as for more targeted upselling.

More generally, partnering with an insurtech firm of some variety is a good first step towards adding value via digital means—they are, generally, the ones that know the terrain best at present.

SD: What core competencies and talent do carriers need to launch successful digital initiatives?

TL: As mentioned, there’s a real need to bring technology-orientated talent onboard to focus on systems and development—software engineers, architects, data analysts and so on. The digital marketing side will also need an injection of talent that understands the modern world of social media and apps and so forth. This is a real challenge as traditional insurance companies just don’t have this sort of talent in-house at present, nor do they have a history of courting it. This is partly why so many are turning to partnerships as a shorter-term way in.

SD: What are the key things to monitor for once you have launched a digital distribution channel?

TL: This comes back to the question of how to effectively screen risk for new customers when the model is digital and automated, and there isn’t a human agent involved to make the same degree of judgement calls. Firms need to develop ways of keeping tabs on who is coming in via the sales process, and ways of ensuring

the influx is in line with the model and pricing of the product in question.

This is unlikely to be a one-off process and there will be periods of trial and error—a lot of the time the new customer set will fail to align precisely with expectations. Constant reevaluation and analysis is required.

SD: Can companies survive without doing digital distribution?

TL: “Survive” is a tricky word in this context.

In the short-term, yes, they can *survive*. The more traditional revenue pool, while dwindling and growing ever-more competitive, has some life in it yet.

However, to not just survive but also *thrive*, companies at the very least need to understand their customers better, and be more up to speed with modern consumer behavior. This doesn’t necessarily mean they have to go down the direct-to-customer route, but adaption is needed to unlock the efficiencies that digital can enable, and to bring approaches in line with expectations consumers now have regarding the purchasing of services. Relying on traditional messages and systems limits the potential market right now, and will eventually be obsolete entirely—firms will be outcompeted if nothing else.

Digital distribution is itself just one aspect of the ongoing modernization of the insurance industry, and in the long run it’s inevitable—those that don’t adapt will be left behind. It’s almost 2020, and consumers want things quickly, conveniently, and on their mobile. This applies to insurance as much as it does to entertainment, grocery shopping or banking. ■



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The Impact on Relative Mortality and Prevalence from Triage in an Accelerated Underwriting Program

By Phillip Janz and Tim Morant

Accelerated underwriting programs continue to evolve at a rapid pace. Triage systems have become a key element in many of the newer accelerated underwriting programs in the market. Depending on the criteria used at the triage point, these programs can have residual effects on class prevalence and mortality which in turn affect the profitability of these programs. In this article we will explore some potential impacts on mortality and prevalence within these programs.

HISTORY OF ACCELERATED UNDERWRITING

In the individual life insurance space, accelerated underwriting (AUW) is the newest iteration of underwriting. In these programs instead of collecting blood and taking the physical measurements of the applicant, underwriting relies on self-reported measurements along with information from various databases and scoring tools.

AUW 1.0

In early accelerated underwriting programs, companies simply changed their age and amount requirements. For certain ages and face amounts, para-medical exams and fluid testing were replaced with checks on prescription drug (Rx) and motor vehicle records (MVR) databases. The mortality impact of removing fluids was assessed as a load to the company's fully underwritten mortality assumption which was partially offset by a discount associated with the protective value of the new underwriting tools and expense savings. In addition, because these changes meant that the underwriting decision would be based on self-reported information rather than tested information (e.g., build and smoker status), loads were introduced to account for asymmetry of information and additional adverse selection.

These early programs often passed on the net increase in expected mortality to the end consumer. Also the first adopters

of these programs usually did not allow for preferred risk classes. Thus these programs were not priced competitively and were prone to additional adverse selection. Few, if any, of these programs achieved their sales targets, and the mortality experience often performed poorly.

AUW 2.0

In order to make these products more attractive in the market and with the intent of attracting better risks, companies started to introduce various changes. The following chart outlines the general evolution of these products over time.

Chart 1
Progression of AUW over Time

Industry-wide	2010	2014	Today
Programs	A few programs; mostly simplified issue (SI)	A handful of products; a mix of SI and accelerated	Many programs of varying designs and target markets
Underwriting tools	MIB, MVR, Rx	MIB, MVR, Rx, other vendor tools, first-generation predictive models, interviews, reflexive questions	MIB, MVR, Rx, credit based scores, more sophisticated predictive models, interviews, reflexive questions, triage
Rules engines	Few	Half	Most
Non-smoker risk classes	One	2 or more	Same as fully-underwritten
Pricing	Table 4-8	10-15 percent loads	Fully-underwritten premiums
Maximum face amounts	\$100,000	\$250,000	\$500,000 or higher

The product parameters and underwriting tools in accelerated underwriting programs continue to evolve. This article will focus on a few aspects related to the use of underwriting triage to select better risks and/or to introduce a sentinel effect.

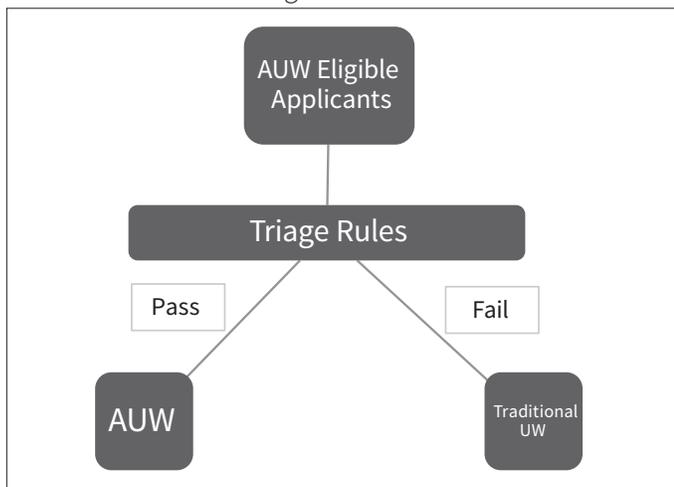
TRIAGE

Triage in this context is the introduction of decision nodes in the underwriting process where the applicant is evaluated using a subset of the available information that provides predictive value. A major benefit of triage is the ability to restrict the availability of accelerated underwriting to those applicants exhibiting better risks or where there is a higher degree of confidence of



assigning an appropriate risk class. A human underwriter typically steps in for applicants with negative indicators, allowing the company to strike a balance between the expense savings of removing fluid underwriting and the extra cost of mortality due to the loss of fluid underwriting. An illustration of a simple triage system is presented in Graph 1.

Graph 1
Basic Illustration of Triage



In this simple triage example, thresholds are set based on certain database checks and responses to the application questions. If the applicant meets these thresholds then the application proceeds to accelerated underwriting. If not, the applicant is required to undergo more traditional underwriting.

Examples of criteria used in triage models include the use of credit based risk scores or the use of prescription drug database

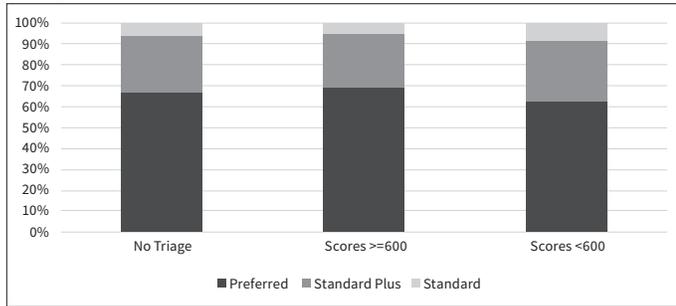
rules or scores, both of which have been shown to segment mortality.^{1 2} As such, the use of triage creates a quasi-preferred class structure. This segmentation can impact both the risk class prevalence and relative mortality on each side of the triage, the degree of which varies with the level of correlation between the triage model's criteria and the company's preferred underwriting rules. On this spectrum of correlation, two extremes exist:

1. The triage model is uncorrelated with the preferred class underwriting rules.
2. The triage model and the preferred rules are highly correlated.

Extreme 1: The triage model is uncorrelated with preferred class underwriting

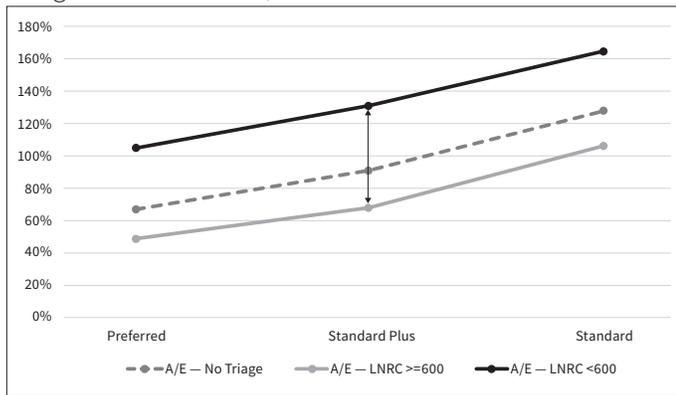
Under the first scenario where the triage model's selection criteria are uncorrelated with the preferred class underwriting rules, but the triage model is predictive of mortality, the pricing mortality assumption would require a path-dependent adjustment: one triage path would have better mortality and the mortality of the lives that are triaged to the other path would be higher. However, because this triage model's criteria are uncorrelated with preferred underwriting rules, each path should have roughly the same preferred composition.³ In other words, if a triage model's selection criteria are uncorrelated with preferred underwriting rules, the model can shift mortality relative to full underwriting without affecting preferred class prevalence. Using only a credit based risk score cut off for the triage decision along with using only health information for the preferred class rules is an example of this extreme. This relationship can be seen in Graph 2, which displays class distribution shifts using Lexis Nexis Risk Classifier (LNRC), a credit based risk score, as the triage model:

Graph 2
Triage at LNRC 600—Distribution Shifts



In this example, a fully underwritten sample population of about 500,000 lives were triaged at an LNRC score of 600. Note that the risk class distribution at and above a score of 600 is extremely similar to the distribution below 600. Scores below 600 are slightly biased toward standard traditional risk classes, but this bias is slight. For this population, LNRC score is a weak predictor of underwriting risk class. Despite this, it is strongly predictive of mortality within risk classes. See Graph 3, which displays how an effective triage model with low correlation to preferred criteria can segment mortality within each risk class.⁴

Graph 3
Triage at LNRC 600—A/E on 2015 VBT



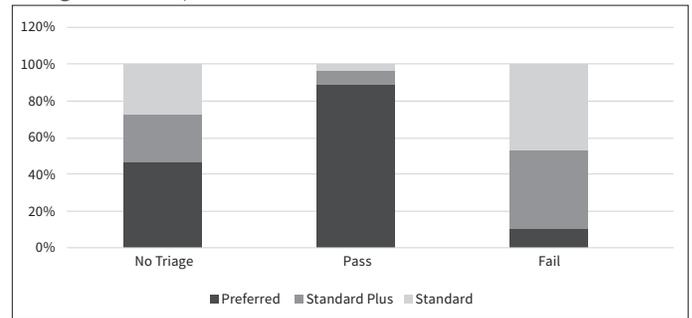
In Graph 3, A/Es relative to the 2015 VBT from the same population of about 500,000 are displayed both above and below the triage threshold. Note that the A/E vector for scores 600+ forms a nearly perfect parallel shift below the original population (labelled “No Triage”), and the vector for scores below 600 are a nearly perfect parallel shift above the original population. For this population, LNRC doesn’t just segment mortality within each class, it does so nearly identically between classes. Large mortality shifts are present on each side of the triage, but distribution shifts are immaterial. Keep in mind, though, that this

result is due to the relationship between LNRC and the specific preferred criteria used to segment the test population.⁵

Extreme 2: The triage model and the preferred rules are highly correlated

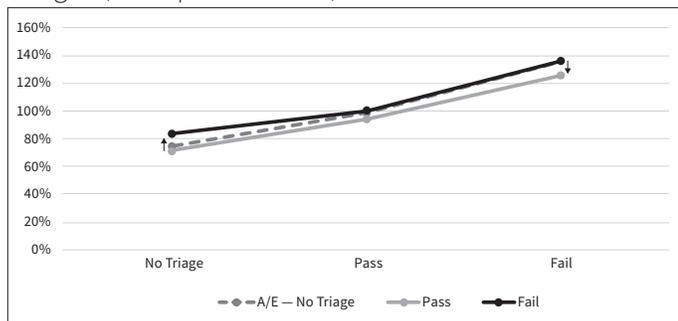
Some life insurance companies’ proprietary models segment mortality and classify risks similarly to their traditional underwriting. This is often by design, as sometimes companies calibrate their triage model criteria to mimic their traditional underwriting criteria. If successfully done, this would lead to a triage model that is highly correlated with traditional underwriting. This means minimal to no path-dependent mortality discounts or loads would need to be considered relative to fully underwritten assumptions, as risk selection between this model’s criteria and preferred underwriting are by definition very similar. Distribution shifts, however, should be considered. The point of a triage model is to separate good risks from bad; if a triage model’s criteria are highly correlated with preferred underwriting, it will categorize traditional preferred risks as “good risks,” meaning a disproportionate number of preferred risks will be sent down the accelerate underwriting path. As a residual effect, a disproportionate number of standard risks will be sent down the traditional underwriting path. This relationship can be seen in Graph 4, which displays class distribution shifts using a sample triage model, calibrated to mimic traditional preferred criteria:

Graph 4
Triage w/ Sample Model—Distribution Shifts



By design, distribution shifts from this model are much more material than what was illustrated using LNRC. And assuming this model is predictive of mortality, the population in each class on the “fail” side of the population will have higher mortality than the “pass” side. However, most of the segmentation from this model is explained by its ability to separate preferred from standard risks, as a traditional underwriter would classify them. Therefore loads and discounts calculated to reflect fully underwritten class differentiation would largely apply here, with minimal adjustment needed. Graph 5 illustrates A/Es on 2015 VBT resulting from the sample model.

Graph 5
Triage w/ Sample Model—A/E on 2015 VBT



Note that the largest shifts from the “No Triage” vector come from the exceptional cases—preferred risks who fail the model and standard risks who pass the model. With few exceptions (which make up a small distribution), A/Es segmented by this triage model are virtually the same as the A/Es of the original population. For this highly correlated extreme, large distribution shifts are present on each side of the triage, but shifts in mortality are small.

These two extremes above are bookends, but uncommon in reality. Most triage programs seem to fall between these bookends. Typically, material mortality and prevalence shifts should be expected, and each should be priced for, as each can independently affect a program’s profitability. This is important to note, as the effects of mortality shifts are obvious, whereas the effects of distribution shifts can tend to be overlooked.

THE POTENTIAL IMPACT OF PREVALENCE SHIFTS ON PROFIT MARGINS

Let’s assume for now that we expect overall mortality between the two triage paths to be equal in a given program. Let’s also



assume that premium rates are not differentiated by triage path. It might be tempting to assume that since overall mortality is the same and premium rates are the same, then the profit margin is the same for the two paths. This does not necessarily follow.

First, prevalence could shift toward the best class. If the underwriting rules are slightly looser on one side of the triage, then overall premium collected will be less in that path than through the other path if we held the applicants constant on both sides.

Secondly, overall mortality can be preserved even though risk class relative mortality and risk class prevalence could both shift. Consider the example in Chart 2.

Chart 2
Impact of Class Shifts

Path 1		
Risk Class	Relative mortality	Prevalence
Best Preferred	85%	40%
Preferred	95%	30%
Standard	125%	30%
Overall	100%	100%

Path 2		
Risk Class	Relative mortality	Prevalence
Best Preferred	90%	50%
Preferred	105%	40%
Standard	130%	10%
Overall	100%	100%

In this example, the relative mortality for each risk class is worse in path 2 than path 1, but the overall mortality in each path is the same. This is due to the shift in the prevalence by risk class.⁶ So even though overall mortality is preserved, the total premium collected⁷ will decrease due to the shift toward preferred from path 1 to path 2. To demonstrate this, premiums are included in Chart 3, along with claim margin (calculated as mortality / premium). For each path, premiums are equal to 106 percent of path 1 class-level mortality.

Each class in path 1 is priced to have a 94 percent claim margin, meaning it is priced to have 6 percent of premium left over after accounting for claims. However, due to prevalence shifts, applying these same premium rates to path 2 results in a claim margin of 101 percent, leaving premiums insufficient to pay claims. So despite being mortality neutral, the two paths are not profit neutral.

Chart 3
Impact of Class Shifts with Premium

Path 1				
Risk Class	Relative mortality	Prevalence	Premium	Claim Margin
Best Preferred	85%	40%	90%	94%
Preferred	95%	30%	101%	94%
Standard	125%	30%	133%	94%
Overall	100%	100%	106%	94%

Path 2				
Risk Class	Relative mortality	Prevalence	Premium	Claim Margin
Best Preferred	90%	50%	90%	100%
Preferred	105%	40%	101%	104%
Standard	130%	10%	133%	98%
Overall	100%	100%	99%	101%

CONCLUSION

Triage systems within accelerated underwriting programs can impact both class prevalence and mortality, and both of these effects should be priced for. Each can independently impact profitability, and ignoring either one in pricing could compromise the viability of a program. ■



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ENDNOTES

- https://www.munichre.com/site/marclife-mobile/get/documents_E-375236011/marclife/asset.marclife/Documents/Publications/LexisNexis-Risk-Classifier-stratifying-mortality-risk-using-alternative-data-sources.pdf
- https://www.munichre.com/site/marclife-mobile/get/documents_E2066913291/marclife/asset.marclife/Documents/Publications/Milliman-RX-Risk-Score-2.0-9-18-18.pdf
- Note: here, preferred composition refers to the distribution of classes a traditional underwriter would have placed, had they underwritten this population.
- This study has 2,715 claims.
- It would be naïve to expect to see the above results on a population without first understanding the relationship between LNRC and preferred criteria used to segment that population.
- Consider a closed universe of 1000 insurance applicants that are standard or better risks. No matter how you subdivide the group into various risk classes, the total mortality of that group does not change. However after determining a risk class for each individual you could arbitrarily decide to upgrade everyone by one class above their assessed fully underwritten class. In that case, the relative mortality of each non-empty class will be worse, but the total mortality does not change.
- Premium collected** = \sum_i Premium rates for class i * Prevalence in class i

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ReFocus 2019: “Exponential” Growth for the Best U.S. Life Insurance Networking Conference

By Ronnie Klein

One of my pet peeves is the incorrect use of the term “exponential.” This was exasperated by the term being misused in a recent Swiss science competition that my younger daughter participated in. One of the participants was presenting his project in the finals of the competition about using a magnifying glass to burn different types of paper. He said that the time it took for the paper to catch fire increased “exponentially” as the paper became darker. He then proceeded to show the burn-rate formula which was a quadratic formula. When pressed by one of the seven judges, he explained that the exponential factor was in the constant?!?! Not a few days after the competition, there was an opinion piece in the *New York Times*,¹ on this exact topic.

With this in mind, I will be careful not to say that attendance, networking and quality of the ReFocus Conference has been expanding exponentially. Since inception in 2007, attendance has grown steadily at a rate of 10 percent per year, on average, with increases each year—yes, it is a monotonically increasing function! 2019 did not disappoint with many new records: overall attendance reached more than 780 people, 18 countries were represented and 17 presenters had the title of president or CEO.

While there were so many great presentations, the highlight of the conference had to be Tuesday morning when our keynote speaker took the stage. The ReFocus Programming Committee works hard to make certain that we have great a great keynote speaker. Let’s face it, a big name puts fannies in the seats. So, when we finally signed the contract with Carly Fiorina, we were all thrilled. How can you have a bigger name than the ex-CEO of Hewlett Packard and a Republican Party presidential primary participant?



From left: Elizabeth Carden, ACLI; Ronnie Klein, ReFocus Co-Chair; Keynote Speaker Carly Fiorina; Dawn Trautman, ReFocus Planning Committee; John Laughlin, ReFocus Co-Chair

Missing from photo: Pete Schaefer, ReFocus Planning Committee; Jay Semla, SOA

But it was the content of Carly’s presentation that wowed the lucky audience. The topic of her talk was leadership. Carly gave real-life examples of her journey from graduating Stamford, to dropping out of law school, to her first job as a “Kelly Girl” to her position as a secretary at AT&T to the CEO of one of the most well-known tech companies. And, as good as the presentation was, her candid answers to questions about the #MeToo movement, leaving HP, her experiences in the presidential primaries and her feelings about our current politicians were refreshing.

Carly expounded on her definition of leadership, saying that leaders are not necessarily the ones with the big offices, the big titles and the big salaries. When asked who in U.S. Congress is a true leader, Carly could not come up with one single name. She continued that the legal profession is the biggest feeder-pool into the political profession and that law is a “win-lose” profession. This is taught in law schools and law firms. “Do anything to win.” Politics, in Carly’s opinion, should not be about “win-lose” but about “win-win,” however “win-win” requires thoughtful compromises. In her opinion, the current political landscape is about winning and fundraising. There is no emphasis on problem solving. Her presentation was nothing short of inspiring and her views on politics were eye-opening. While I

was seated in the first row, colleagues of mine in the back of the room said that you could hear a pin drop.

Another highlight for me was our new conference emcee, Nina Easton. The Programming Committee made a tough choice to part ways with long-time moderator Bill Press for a “fresh face.” Whoever took this role had very large shoes to fill as Bill grew into a ReFocus family member. Whatever doubts that we had were quickly allayed when Nina took the stage for the first time. Her work ethic preparing for the conference really paid off and was especially evident during the two sessions that she moderated. Nina has a natural curiosity that helped her get to the heart of the discussion, sometimes a bit off script. While we have not yet signed a contract for next year, I fully expect that we will be asking Nina back for ReFocus 2020 at the Bellagio Hotel from March 1–4.



I not only would like Nina to be at ReFocus 2020, but I would like to see you as well. The American Conference of Life Insurers (ACLI) and Society of Actuaries (SOA), along with the Programming Committee, work very hard to get all of your clients, business contacts and colleagues in one place at one time. Think of the money that your company would save to send you to this amazing conference. The content is fabulous and the networking opportunities are even better. I would like to personally thank my co-chair, John Laughlin, for his hard work and dedication to the ReFocus Conference. More importantly, I would like to thank John for his friendship. The committee would not be complete without Dawn Trautman and Pete Schaefer. Finally, Team SOA, led by Jay Semla and Team ACLI led by Elizabeth Carden, provide content and logistic support as well as a keen attention to detail. Overall, it is a team that I am proud to be part of.

If you would like to know more about ReFocus, please contact Jay, Elizabeth, Dawn, Pete, John or me. And, if you would like the ability to get company recognition from 800 life insurance executives, please contact any of us about sponsorship opportunities. We can always use another Diamond Sponsor, so let us know if you would like to upgrade your sponsorship as well. See you in Vegas next year! ■



Ronnie Klein, FSA, MAAA, is director, Global Ageing, with The Geneva Association. He can be contacted at ronniefsa@aol.com.

ENDNOTE

- 1 Suri, Manil. (2019) “Stop Saying ‘Exponential.’ Sincerely, a Math Nerd.” *The New York Times*. <https://www.nytimes.com/2019/03/04/opinion/exponential-language-math.html>.

Results of the 2018 SOA Life Reinsurance Survey

By Anthony Ferraro

The North American life reinsurance market experienced a modest 2 percent boost in production for recurring individual life new business in both the U.S. and Canada during 2018. Group recurring in-force premiums increased 6 percent in the U.S. in 2018, although decreased 11 percent in Canada as compared to 2017. Table 1 summarizes the most recent results from the 2018 SOA Life Reinsurance Survey.

ABOUT THE SURVEY

The SOA Life Reinsurance Survey is an annual survey that captures individual and group life data from U.S. and Canadian life reinsurers. The survey reports reinsurance new business production and in-force figures, with reinsurance broken into the following categories:

- **Recurring reinsurance:** Conventional reinsurance covering an insurance policy with an issue date in the year in which it was reinsured. For purposes of this survey, this refers to an insurance policy issued and reinsured in 2018.

- **Portfolio reinsurance:** Reinsurance covering an insurance policy with an issue date in a year prior to the year in which it was reinsured or financial reinsurance. One example of portfolio reinsurance would be a group of policies issued during the period 2005–2006, but being reinsured in 2018.
- **Retrocession reinsurance:** Reinsurance not directly written by the ceding company. Since the business usually comes from a reinsurer, this can be thought of as “reinsurance of reinsurance.”

Individual life results are based on net amount at risk, while the group life results are based on premium.

The figures are quoted in the currency of origin with U.S. business provided in USD and Canadian business provided in CAD.

While we reach out to all of the professional life reinsurers in North America, please note that there may be companies that did not respond to the survey and so are not included.

The remainder of this article discusses this year’s results in more detail and looks at overall life reinsurance trends.

We will begin by looking at the results for the U.S. individual life market.

UNITED STATES—INDIVIDUAL LIFE

Recurring New Business

Recurring individual life new business recorded an increase in production for the third year in a row after a prolonged period of

Table 1
Reinsurance Landscape

	Individual Life			Group		
	New Business Volumes (\$ billions)			In-force Premiums (\$ millions)		
	2017	2018	% Change	2017	2018	% Change
U.S.						
Recurring	\$498	\$506	2%	\$777	\$821	6%
Portfolio	169	101	-40%	3,462	4,490	30%
Retrocession	7	7	-7%	0	0	n/a
Total	674	613	-9%	4,239	5,311	25%
Canada						
Recurring	168	171	2%	104	93	-11%
Portfolio	0	19	NMR	835	32	-96%
Retrocession	9	7	-23%	0	0	n/a
Total	177	197	11%	939	125	-87%

NMR = non-meaningful result

decreases. Compared to 2017, U.S. recurring new business rose nearly 2 percent from \$498 billion to \$506 billion in 2018. A contributing factor for the increase is believed to be the growth in accelerated underwriting programs in which the collection of fluids is replaced with alternative data sources. Since these programs are still relatively new to the market—although growing—direct writers have reached out to reinsurers for assistance in both developing the programs and taking a share of the risk. Similarly, the emergence of new digital distribution channels has prompted sharing of risk in light of new target markets.

Figure 1 shows the annual percentage change in U.S. recurring new business production over the last ten years. Although the recent rate of increases has trended down, since 2015, individual life recurring new business grew an impressive 24 percent.

In 2018, 80 percent of recurring new business production was yearly renewable term or YRT and 20 percent was coinsurance, in line with prior years.

To estimate an overall cession rate for the life reinsurance industry, we compare new direct life sales to new recurring reinsurance production. According to LIMRA,¹ individual life insurance sales increased 1 percent in 2018 based on both premium and face amount, mainly driven by continued strong sales of indexed universal life. Taking these results together with the life reinsurance production levels results in an estimated cession rate for the industry of 29 percent for 2018. While the cession rate is flat as compared to 2017, it is higher than recent years. As seen in Figure 2 (Pg. 24), the estimated cession rate has hovered around 27 percent since 2011. It's interesting to note that 2018

individual life recurring new business and the 2018 cession rate have nearly returned to 2010 levels.

The top five companies by market share in the U.S. reinsurance market remained the same as in 2017 and represent 89 percent of 2018 market share as compared to 90 percent last year (see Table 2, Pg. 24). SCOR once again led all reinsurers in recurring individual life new business. In 2018, SCOR reported \$115 billion of recurring business, a 9 percent increase from 2017, resulting in a 23 percent market share. The next three largest reinsurers by market share are tightly clustered. RGA and Swiss Re each garnered 19 percent market share, reporting \$94 billion each. Munich Re reported recurring new business production levels in 2018 of \$93 billion, up 1 percent from 2017. Of the nine reinsurers reporting results, six reported an increase in recurring new business volumes as compared to 2017.

Portfolio New Business

For survey purposes, portfolio reinsurance includes in-force blocks of business and financial reinsurance. As a result, there are often large fluctuations from year to year in reported portfolio results, and 2018 was no exception. New portfolio business dropped from \$169 billion in 2017 to \$101 billion in 2018. Munich Re accounts for \$55 billion or 55 percent of the 2018 portfolio new business followed by SCOR at \$26 billion (25 percent) and Hannover Life Re with \$16 billion (16 percent). The remaining companies reporting portfolio new business are Canada Life (\$4 billion) and RGA (\$0.3 billion).

Figure 3 (Pg. 25) illustrates the portfolio new business written over the last ten years and the volatility of the results. As

Figure 1
U.S. Annual Percentage Change in Recurring New Business (2009–2019)

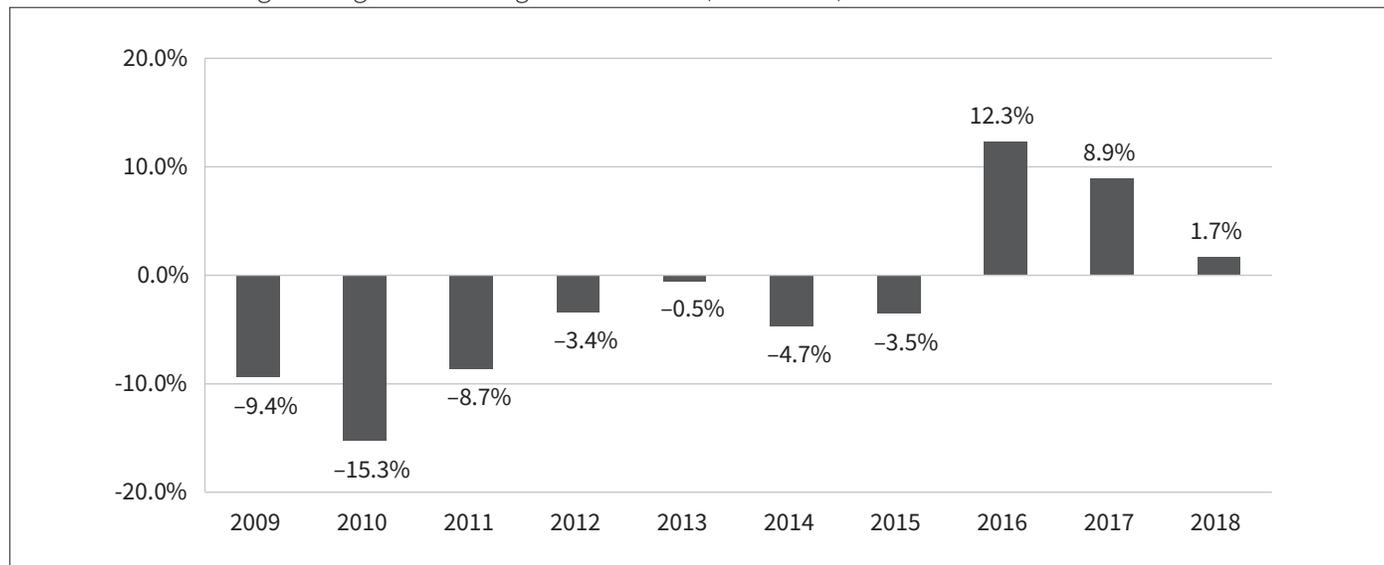


Figure 2
U.S. Recurring Cession Rate

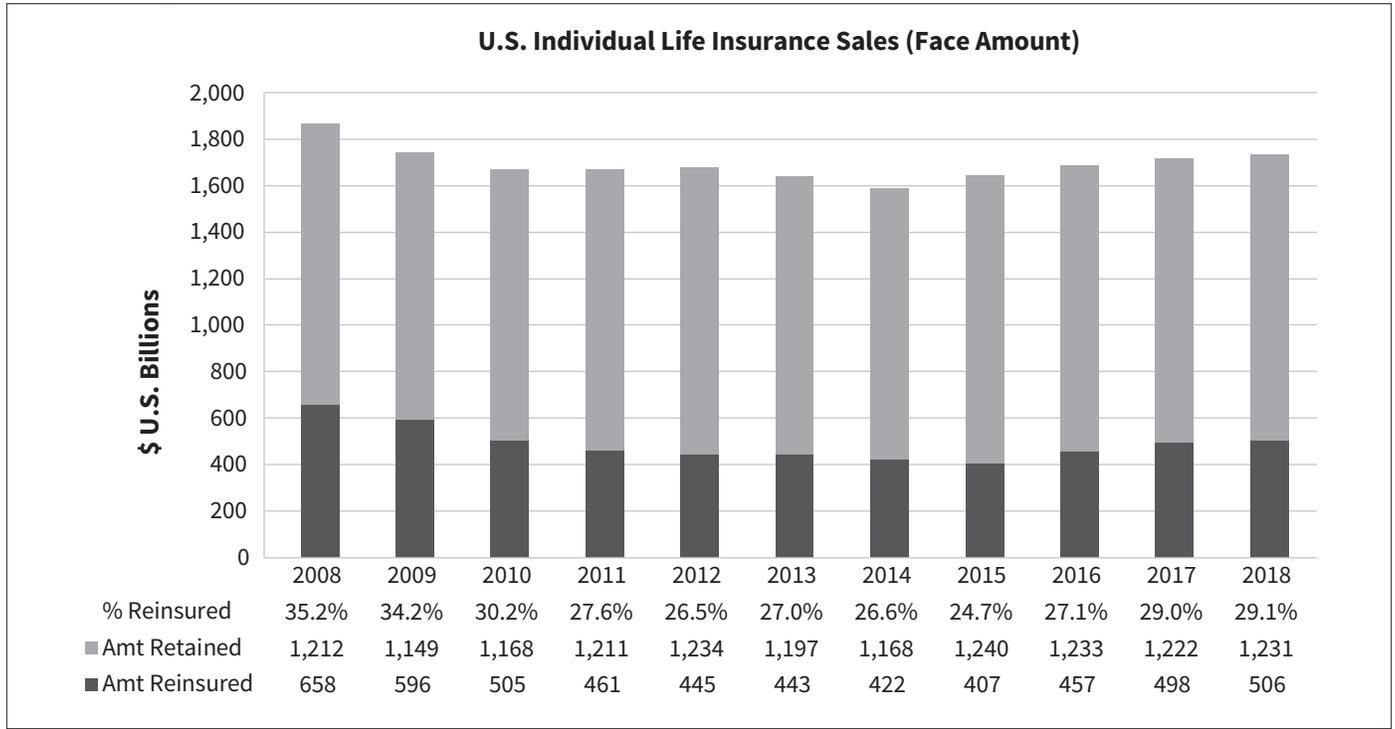
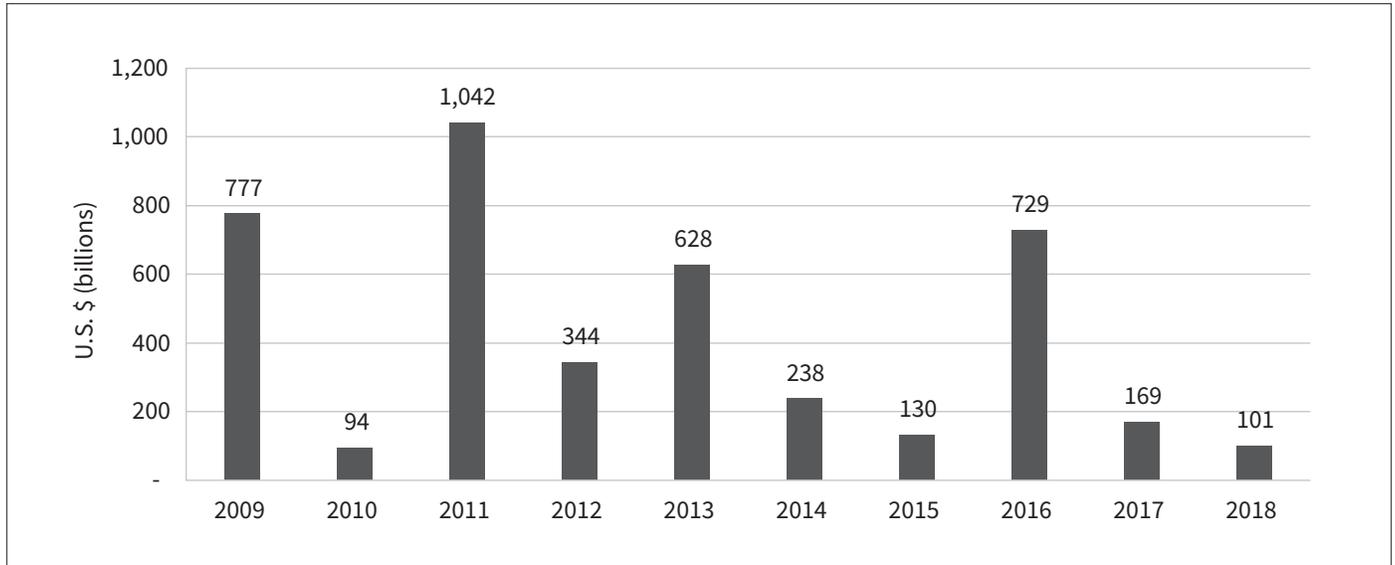


Table 2
U.S. Recurring Individual Life Volume (\$ billions USD)

Company	2017		2018		Change from 2017 to 2018
	Assumed Business	Market Share	Assumed Business	Market Share	
SCOR Global Life	\$105	21%	\$115	23%	9%
RGA	89	18%	94	19%	6%
Swiss Re	96	19%	94	19%	-2%
Munich Re	92	19%	93	18%	1%
Hannover Life Re	66	13%	56	11%	-14%
Canada Life Re	20	4%	20	4%	0%
PartnerRe	12	2%	14	3%	17%
General Re Life	10	2%	13	2%	20%
Optimum Re	9	2%	9	2%	-6%
Total	498	100%	506	100%	2%

Figure 3
U.S. Portfolio Business Trend



reported previously, the large spikes in 2009, 2011 and 2013 were the result of a merger/acquisition within the life reinsurance industry, or, as is the case with 2016, the result of a large inforce transaction.

Retrocession

Retrocession new business volumes are considerably smaller than recurring new business and portfolio new business. As noted in last year’s survey, from 2005 to 2015, retrocession production in the U.S. had been on a downswing, dropping from \$43 billion in 2005 to \$5 billion in 2015. Following an uptick in 2016 to \$8 billion, retrocession new business dropped back to approximately \$7 billion in 2017 and remained flat in 2018. The primary retrocessionaires in 2018 (unchanged from 2017) were Berkshire Hathaway Group, Pacific Life and AXA Equitable.

CANADA—INDIVIDUAL LIFE

Now we will examine the results for the Canadian individual life market.

Recurring New Business

Recurring individual life new business in Canada ticked upward for the fourth consecutive year. Reported recurring new business totaled \$171 billion in 2018 which is a 2 percent increase over 2017. Figure 4 (Pg. 26) shows the annual percentage change in recurring new business over the last 10 years. Since 2014, recurring new business in Canada grew nearly 20 percent after a period of minimal growth and declines. For 2018, 95 percent of recurring new business in Canada is YRT and 5 percent is coinsurance, consistent with prior years.

According to LIMRA, Canadian direct individual life sales ended 2018 down 9 percent as compared to 2017 on an annualized premium basis and down 2 percent on a face amount basis.² Remnants of the tax law changes that took effect at the beginning of 2017 severely impacted first quarter 2018 sales, although the second half of the year showed a marked improvement.

The estimated cession rate for 2018, which is based on a comparison of direct life sales to recurring reinsurance volumes, edged up from 65 percent to 67 percent despite the decrease in sales by face amount. As shown in Figure 5, the cession rate had steadily dropped from 2009 to 2016 in Canada before trending up again in 2017 and 2018. As well, the estimated Canadian cession rate is much higher than that of the U.S., where approximately 29 percent is reinsured.

In terms of market share, the top three life reinsurers in the Canadian market are Munich Re, RGA and SCOR. In 2018, they collectively represent 66 percent market share. Munich Re topped recurring new business writers reporting \$46 billion, a 9 percent increase over 2017. RGA followed with \$42 billion (6 percent decrease from 2017) and SCOR rounded out the top three with a reported \$27 billion (17 percent increase from 2017). PartnerRe reported \$24 billion in recurring new business volume, a 25 percent increase versus 2017, and now accounts for 14 percent market share.

Of the seven reinsurers reporting to the survey, five reported increases in recurring new business volumes over 2017. Table 3 summarizes assumed volumes and market share by reinsurer and compares 2018 and 2017 results.

Figure 4
Canadian Annual Percentage Change in Recurring New Business (2009–2019)

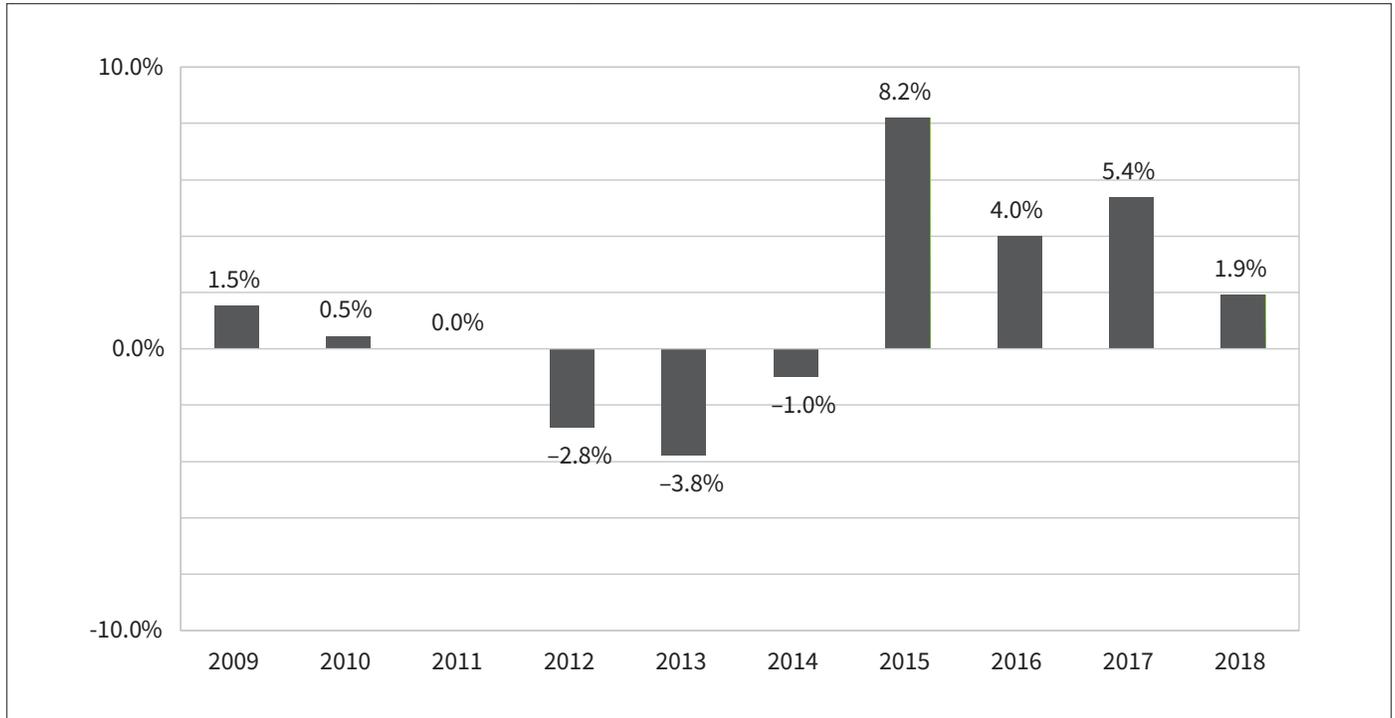


Figure 5
Canada Recurring Cession Rate

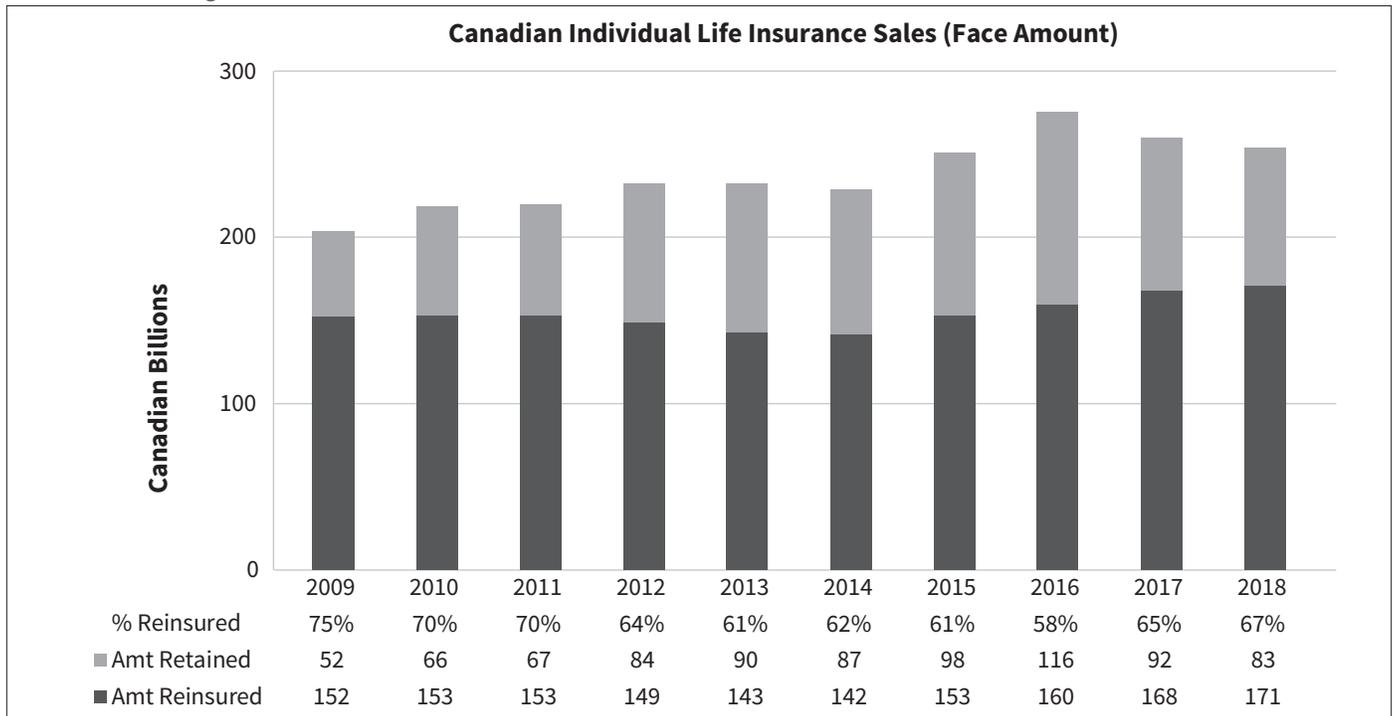
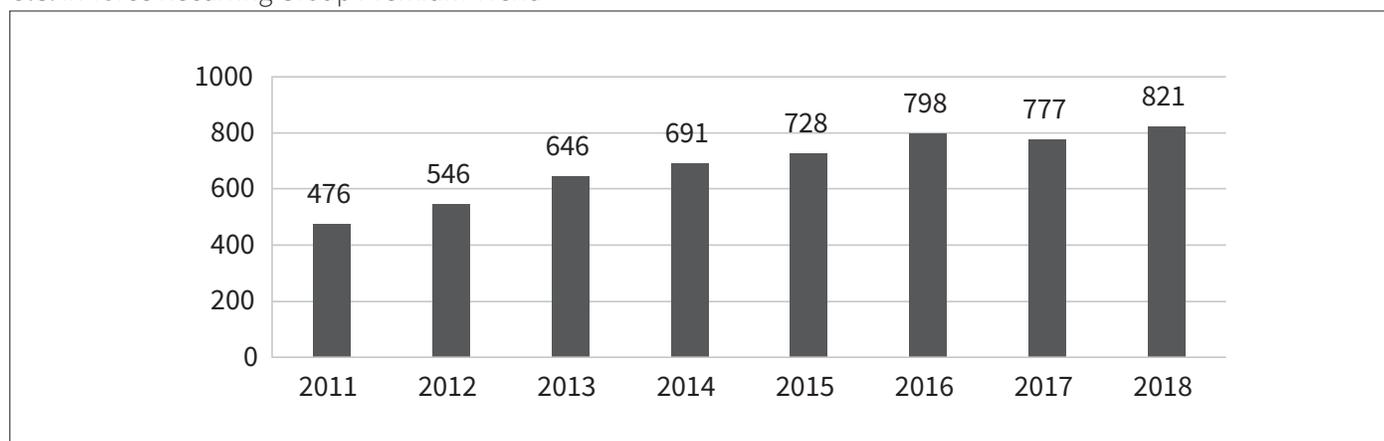


Table 3
Canada Recurring Individual Life Volume (\$ billions CAD)

Company	2017		2018		Change from
	Assumed Business	Market Share	Assumed Business	Market Share	
Munich Re	\$42	25%	\$46	27%	9%
RGA	44	26%	42	24%	-6%
SCOR Global Life	23	14%	27	16%	17%
PartnerRe	19	11%	24	14%	25%
Swiss Re	28	17%	16	9%	-42%
Optimum Re	10	6%	12	7%	12%
Hannover Life Re	2	1%	6	3%	262%
Total	168	100%	171	100%	2%

Figure 6
U.S. In-force Recurring Group Premium Trend



Portfolio New Business

RGA and PartnerRe reported portfolio new business for 2018. RGA accounted for \$18.878 billion of the \$18.925 billion reported.

Retrocession

Similar to the U.S., retrocession business in Canada is considerably smaller than recurring new business and portfolio business. Canadian retrocessionaires were Pacific Life, Berkshire Hathaway and AXA Equitable. Pacific Life led the retrocessionaires with \$4.0 billion, followed by Berkshire Hathaway (\$2.9 billion) and AXA Equitable (\$0.04 billion). Overall, the retrocession market in Canada decreased from \$8.6 billion in 2017 to \$6.9 billion in 2018.

UNITED STATES—GROUP LIFE

The next section discusses the group insurance results for the U.S.

U.S. group life reinsurers reported over \$5.3 billion of in-force premium in 2018, up 25 percent from the \$4.2 billion reported in 2017. Of this, recurring business accounted for \$0.8 billion and portfolio business represented \$4.5 billion.

Recurring in-force group premiums in the U.S. grew by 6 percent to reach \$821 million in 2018 following a drop in premium in 2017. Nonetheless, group in-force premiums grew 72 percent from \$476 million in 2011 to \$821 million in 2018 (see Figure 6).

As shown in Table 4 (Pg. 28), the top three reinsurers in the U.S. group life reinsurance market for recurring business are Swiss Re, Munich Re and RGA. Collectively, these three companies account for 87 percent of the market. Swiss Re, Munich Re and RGA reported increases in 2018 of 1 percent, 7 percent and 8 percent, respectively.

Table 4
U.S. Recurring In-force Group Premiums (\$ millions USD)

Company	2017		2018		Change from 2017 to 2018
	Assumed Business	Market Share	Assumed Business	Market Share	
Swiss Re	\$326	42%	\$329	40%	1%
Munich Re	197	25%	212	26%	7%
RGA	161	21%	174	21%	8%
Group Reinsurance Plus	37	5%	34	4%	-8%
SCOR Global Life	21	3%	32	4%	54%
General Re	27	3%	32	4%	19%
Hannover Life Re	8	1%	7	1%	-12%
Canada Life Re	1	0%	1	0%	-41%
Optimum Re	0.4	0%	0.2	0%	-37%
TOTALS	777	100%	821	100%	6%

Table 5
Canada Recurring In-force Group Premiums (\$ millions CAD)

Company	2017		2018		Change from 2017 to 2018
	Assumed Business	Market Share	Assumed Business	Market Share	
Munich Re	\$51	49%	\$50	54%	-1%
RGA	21	20%	19	21%	-8%
Swiss Re	26	25%	17	19%	-33%
Optimum Re	6	5%	3	4%	-41%
SCOR Global Life	1	1%	3	3%	183%
TOTALS	104	100%	93	100%	-11%

In-force group portfolio premium totaled \$4.5 billion in 2018, up 30 percent from last year's \$3.5 billion. Portfolio premium originates from three reinsurers. Canada Life Re reported \$2.8 billion in portfolio premium in 2018, up from \$2.0 billion in 2017. Munich Re reported \$1.5 billion in 2018 versus the \$1.3 billion reported in 2017. Finally, Hannover Life Re reported \$204 million in group life portfolio premium in 2018, up from \$132 million.

CANADA—GROUP LIFE

Next, we look at results for the group life insurance market in Canada.

Group life reinsurers in Canada reported \$125 million of in-force premium in 2018. Of this, recurring business accounted for \$93 million and portfolio business represented \$32 million. For 2018, recurring in-force group premium decreased 11 percent as compared to 2017. Similar to the U.S., the group

market in Canada is dominated by three reinsurers: Munich Re, RGA and Swiss Re. These three account for 94 percent of the market share (see Table 5). Of the five reinsurers reporting, four reported decreases in recurring in-force premium versus 2017.

Munich Re was the only Canadian reinsurer reporting group in-force portfolio business in 2018. Munich Re reported \$32 million in portfolio premiums for 2018.

LOOKING AHEAD

As noted last year, life reinsurance production is influenced by many factors, including direct life sales, the economy, regulation, and importantly, the reinsurance ceding practices of a limited number of life insurers. The 2 percent increase in both U.S. and Canadian life recurring new business reinsurance production in 2018 continued the positive trend since 2016. LIMRA forecasts moderate near-term growth in direct U.S. life insurance sales.



A key objective for many direct life insurers is sales growth. To that end, direct writers are looking to new distribution channels, including digital and direct-to-consumer models, as well as new target markets. Life reinsurers are well-positioned to partner with direct writers in these initiatives by sharing in the risk and in identifying new distribution partners. Additionally, life reinsurers' expertise goes beyond the traditional mortality and risk selection. Life reinsurers can offer expertise related to accelerated underwriting programs—developing underwriting rules, assessing the protective value of new data sources, product development and providing automated underwriting rules

engines—in addition to developing predictive analytics tools, such as smoker propensity models and risk class prediction models. This expertise and support can be invaluable to direct writers as many look to improve the customer experience as a means of reaching more insureds and expanding insurability.

Reinsurance remains a valuable tool for efficient capital and volatility management. Financial reinsurance structures and reinsurance of in-force blocks, either for non-core businesses or as a means to manage profitability, continue to be attractive levers for direct writers.

Thank you to all of the reinsurers that participated in this year's survey. Complete results are available at www.munichre.com/us/life/publications. ■

Note that Munich Re prepared this survey on behalf of the Society of Actuaries Reinsurance Section as a service to section members. The contributing companies provide the data in response to the survey. The data is not audited, and Munich Re, the Society of Actuaries and the Reinsurance Section take no responsibility for the accuracy of the figures.



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ENDNOTES

- 1 LIMRA "U.S. Individual Life Insurance Sales Trends, 1975–2017 Industry Estimates" and "U.S. Retail Individual Life Insurance Sales Technical Supplement, Fourth Quarter 2018."
- 2 LIMRA, "Canadian Individual Life Insurance Sales Technical Supplement (2018 Annual)."

Network News

By Mark Troutman

Editor's note: This article addresses the importance of a proper actuarial analysis of a managed care health plan provider network when offering employer stop loss coverage for self-funded employee benefits programs. It also outlines a spectrum of potential net risk retention and service options supported by reinsurance through a managing underwriter.

Employers continually search for ways to control the escalating costs associated with providing a company-sponsored employee medical benefits program subject to ERISA. Many have engaged managed care health plans by any name (HMO, PPO, ACO, MSO) to control health care costs. Others have looked to the cost and control aspects inherent in self-funding their employee health care benefits. Employers that select both administrative services and managed care programs with strong provider networks have the best of both worlds.

NETWORK OPTIONS

Networks come in a variety of shapes and sizes. A self-funded employer and its third party administrator (TPA) may access a national network from one of the major national insurance carriers such as Blue Cross and Blue Shield, United/Optum, CIGNA or Aetna. This is most important for an employer with employees in multiple locations and because the national players often have strong discounts given their volume pricing position. Regional networks are often offered by provider-owned health plans which receive strong discounts from their provider owner and allow them to compete with the national chains listed above. Larger employers may enter into a direct negotiation with various hospital facilities to create their own direct network. Lastly, employers may also utilize a “wrap” network to access discount arrangements for out-of-network providers. It matters not whether these networks are owned or rented, but rather their cost-effectiveness. Rented and “wrap” networks typically have lesser discounts than proprietary or owned networks.

Alternatively, one program design in the market requires no specific provider network, but rather focuses on reference-based pricing associated with percent of Medicare allowable charges to control costs. It still works better with a strong provider network to minimize the impact of the pricing limits versus actual negotiated provider contract arrangements.



Provider networks demonstrate various regional differences. Rural areas more so than urban areas may be subject to a single or two dominant provider group(s). The larger the market, the more competitive it typically is in terms of options for provider negotiated arrangements with competing hospital systems. These arrangements may be offered by a TPA which is renting a network or by an insurer which has contracted with the providers for offering to its insured groups. Proprietary networks more so than rentals have the potential for customization for various product designs (e.g., tiered PPOs which provide different reimbursements for different utilization of tiered providers).

STAKEHOLDERS

All parties involved with ERISA self-funded plans have a stake in the strength of the managed care and the provider arrangements:

Employer/employee—the employer bears the liability for the cost of the employee benefit program and the employees have to utilize the given network and non-network providers to minimize their out of pocket costs.

Hospital/Physician—they enter into these arrangements to increase their hospital volume/fill their beds.

Insurer—although it may not share the underwriting risk with the self-funded health plan (except for the employer stop loss insurance), they also offer fully insured options in addition to self-funded options and these should be consistent with one another relative to the risks assumed.

TPA—the TPA has to administer the benefit arrangements in a timely and accurate manner, and this includes repricing of provider claims in strict adherence to contractual arrangements.

Employer stop loss carrier—this sleep insurance still provides protection for adverse claim experience per member and for the group as a whole. Pricing considerations are described later.

Broker—the broker is the fiduciary representative of the employer in the administration of the employee benefits program pursuant to ERISA guidelines. They only want what is best for the client based upon the client’s expressed desires. Their job is to help the client find the best options for administration, provider network and employer stop loss carrier.

THE DATING GAME

There are numerous considerations in selecting an appropriate provider network partner. These include the cost-effectiveness as described above—which is not simple percentage discount, but rather quality and net cost to the employer assuming the liability for claims. Clearly, the ERISA plan is better receiving 100 percent of a \$50,000 cost than 50 percent of a \$200,000 cost. Health plans have to have broad access to providers—therefore, the depth and breadth of the network and access to those network providers is critical to an employer and an employee. Further, it is not just the discount arrangement, but how well the care is managed within the managed care program. Enter discussions of disease management, utilization review, population health management, etc. The TPA needs to have strong administrative capabilities for network repricing and also provide the client employer group access to information to help them make decisions on their benefit program year over year.

“HELP ME HELP YOU”

Many self-funded employers will purchase specific and aggregate stop loss insurance to mitigate the claim severity and frequency risks they have assumed. A managed care plan can establish a strong relationship with an employer stop loss carrier to offer this coverage. It is critical that the employer stop loss coverage produces pricing that reflects the value of the network provider agreements and medical management capabilities of the managed care plan. The network discounts will support the specific stop loss price and the aggregate claim attachment point amount. This requires the managing underwriter in the employer stop loss program to understand the managed care network provider agreements and develop specific employer stop loss base rates for the provider network and medical management programs being offered in the self-funded environment. This requires knowledge of the patterns of delivery of care in the provider network, the contract type (percent of billed charges, fixed fee contracts, and outlier provisions) as well as the TPA ability to proactively identify and manage employee routine and catastrophic claims consistent with the sound employee benefit plan design and managed care vendor support. This requires analysis of where the care will actually be delivered, not just the most cost-effective arrangements on paper—for example, if you are in Cheyenne, Wyoming, the complex neonatal risk will still likely migrate to Denver Children’s hospital. It is also important to analyze the experience of the employer group itself with the given provider network, if it is not a new option.

Table 1 shows a sample network discount calculation for employer stop loss coverage.

Table 1
Hospital Discount Comparison (by ZIP Code)

Hospital	CMP		CMP - Plus					Number 2 Care					
	Regular	Platinum	LP - Choice	LP - Exclusive	LP - Exclusive +	TRP	TRP +	XYZ - Dual	XYZ - E1	XYZ - E2	XYZ - E3	XYZ - E4	XYZ - EPO
Hospital 1	33%	53%	30%	45%	50%	55%	60%	0%	0%	0%	0%	0%	0%
Hospital 2	12%	12%	12%	12%	12%	15%	15%	12%	12%	12%	12%	12%	18%
Hospital 3	34%	54%	25%	35%	38%	38%	38%	5%	5%	5%	5%	5%	5%
Number 2 City	15%	31%	0%	0%	0%	0%	0%	30%	32%	38%	40%	44%	50%
Number 2 Rural	6%	23%	5%	5%	5%	0%	0%	20%	23%	30%	33%	35%	40%
Number 2 Rural 2	5%	5%	10%	10%	10%	0%	0%	12%	12%	12%	12%	12%	17%
Big City Memorial	15%	15%	10%	10%	10%	10%	10%	16%	16%	16%	16%	16%	16%
Discount Range	24–37%	39–60%	24–36%	32–50%	35–55%	38–59%	41–61%	24–37%	26–39%	30–46%	32–49%	35–53%	40–61%



The final network discount factor is simply determined by calculating the percentage of discounts to various categories of in-network versus non-network claims times the expected utilization of in-network versus non-network providers (see Figure 1).

This 35 percent assumed discount for “from ground up” claims is then leveraged as it has more impact on claims exceeding various deductible levels (see Figure 2).

Having outlined this employer stop loss provider network pricing algorithm, it is to be remembered that the impact of the (35 percent) discount is more important to overall plan costs since it affects all in-network claims, not just those 5–10 percent which may exceed the chosen specific individual deductible per member for employer stop loss coverage.

Figure 1
Specimen Network Rating Calculation for Employer Stop Loss Pricing

In-Network Pricing Factor 58%	×	Network Utilization for Excess Claims 85%	=	Weighted In-Network Factor 50%
Non-Network Pricing Factor 100%	×	Non-Network Utilization for Excess Claims 15%	=	Weighted Non-Network Factor 15%
Stop Loss Premium Factor			=	50% + 15% = 65%
Stop Loss Discount			=	1 - 65% = 35%

“DO YOU FEEL LUCKY?”

Health plans interested in utilizing their provider network and medical management capabilities in a self-funded product environment have several important decisions to make. The first is whether to file and utilize their own insurance policy for employer stop loss coverage. Secondly, they must decide what functions they would like to perform versus having them performed by an external party such as a managing underwriter. Lastly, they must determine their risk tolerance, i.e., whether they will retain the entire specific and aggregate stop loss risk or share the risk on an excess of loss (XL) or quota share (QS) basis with a professional reinsurer. This presents the health plan with a spectrum of options from consulting services only to full risk transfer. Table 2 outlines these issues and choices.

Figure 2
Discounts by Deductible

Specific Deductible	Leveraged Discount
\$0	35%
\$25,000	44%
\$40,000	46%
\$60,000	50%
\$80,000	50%
\$100,000	53%
\$150,000	57%
\$200,000	60%
\$250,000	67%
\$350,000	67%

Table 2
Employer Stop Loss Facility Options

	Client Profile	Description of Option	Front Paper	Specific Case Underwriting & Pricing	Policy Issue, Premium & Claim Admin	Retained Risk by Health Plan
1	Start-up or non-risk taker with no brand desire beyond TPA/PPO. Less expertise or time commitment.	Full service managing underwriter	Issuing carrier	Managing underwriter	Managing underwriter	None
2	Health plan interested in full service vendor, wants some risk but has no ability or no desire to issue policies.	Full service managing underwriter with reinsurance	Issuing carrier	Managing underwriter	Managing underwriter	Health Plan or captive reinsures XL/QS from issuing carrier
3	Health Plan branded but no risk or other administration role.	Full service managing underwriter with Health Plan front	Health Plan	Managing underwriter	Managing underwriter	None
4	Health Plan interested in branding and retaining some risk.	Full service managing underwriter with Health Plan retaining risk	Health Plan	Managing underwriter	Managing underwriter	Health Plan cedes XL/QS to reinsurer
5	Health Plan interested in controlling administration, pricing and underwriting, and retaining some risk.	Stop loss consulting plus XL/QS reinsurance placement	Health Plan	Health Plan	Health Plan	Health Plan cedes XL/QS to a reinsurer
6	Health Plan interested in controlling administration, pricing and underwriting, and retaining all risk.	Stop loss consulting	Health Plan	Health Plan	Health Plan	Health Plan retains all risk

CONCLUSION

Constructing one of the best employee medical benefits solutions by integrating self-funding with managed care is not easy, but is worthwhile and critical in controlling rising health care costs. The provider network rating process is important to establish expected claims and employer group stop loss rates and includes analysis of utilization of available provider networks and discounts, type of group (single site versus multi-location), referral patterns and managed care cost control programs.

A health plan's and managing underwriter's success in these arrangements is dependent upon their ability to develop the right provider network discounts or loads (as addressed previously in

this article), provide a customized employer stop loss contract, underwrite and support competitive proposals, and cultivating a personalized relationship with the producers (agents, TPAs, brokers, consultants), all within agreed upon service capabilities and risk tolerances. ■

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Reinsurance Reloaded

By Mark Prichard

In Brief. The collective investment in transforming the life insurance proposition exceeds anything seen in the last 30 years—a working lifetime. As one would expect, reinsurers are playing a major role. The past five years have seen global reinsurers raise the bar on client experience to new levels, while also investing, expanding and re-organizing to support the transformation of the primary insurance industry, and, in so doing, also their own.

NMG Consulting’s annual Study of the global life & health reinsurance industry (the Study) is now familiar to many, including approximately 1,500 people across more than 50 countries that contribute their time to interviews annually.¹

The Study itself has been a great source of insight into market trends and has been used by reinsurers to develop strategies to deliver better client outcomes over time.

It has been a fascinating journey so far, particularly witnessing how reinsurance executives and teams have become expert in assimilating customer perspectives into the way they conduct business, and how these insights have impacted strategies over time.

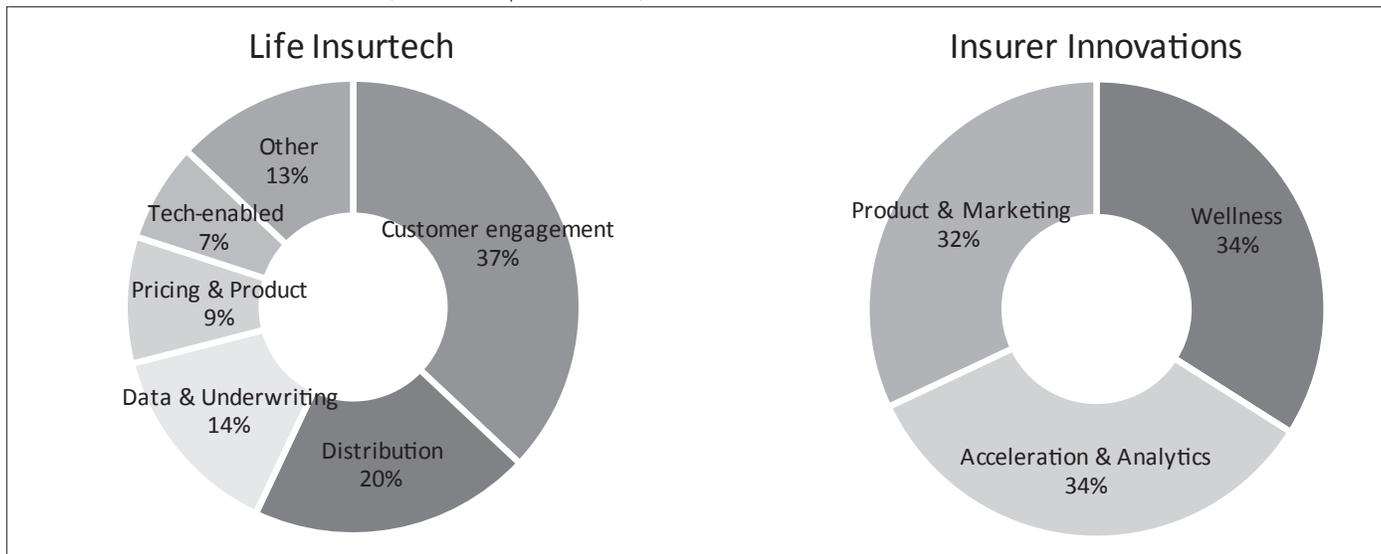
UNPRECEDENTED CHANGES

The life insurance industry is engaged in a dramatic transformation that has passed through several phases. What started as an initial period of reflection was followed by a level of confusion, subsequently advancing to a state of continuous innovation that has been characterized by the rapid adoption of new technologies and business models. For several years, NMG has been tracking the industry’s leading innovators on a global basis, as well as the profile of their innovations. It is clear that the momentum of the innovation effort continues to build without any near-term expectations of peaking.

Life InsurTech ventures are important partners in the transformation process, although these contributions are often obscured due to the huge media and industry focus on P&C InsurTech. Our data suggest that P&C InsurTech swamps Life InsurTech by a factor of ten, in terms of investment and number of businesses, but nonetheless there are 50 or more Life InsurTech ventures of significance around the world, although most of these remain domestically oriented and are yet to progress to scale. For now.

Embedded at the core of this transformation is a recognition that as an industry we’ve made life insurance products particularly difficult to acquire for retail customers; in this respect the U.S. industry has set the benchmark! Another recognition is that current life insurance products lack elements that are now considered essential for today’s digital consumers (which includes just about everyone by now). Finally, there’s a growing realization that the way in which insurers address customer segments and approach the process of underwriting is set for fundamental change.

Figure 1
InsurTech & Innovation Themes (Global Top 50 – 2018)



As a result, Life InsurTech activity is significantly focused on finding new ways to frame the customer experience (“CX” in the new parlance), with customer engagement at its core. While a life insurance product may never hold the same broad appeal as an iPhone, we’ve seen Life InsurTech CEOs talk about their offerings with a similar fervour. Equally InsurTechs with a focus on new distribution opportunities carry significant upside, as they address the perennial difficulty of securing new customers. However, prevailing levels of enthusiasm notwithstanding, life insurance is set to remain a sold product for a while to come, because none of these improved offerings are able to sell themselves.

We expect that insurers will be able to point to only modest achievements for these early-generation innovations, and the majority of InsurTech ventures will find the timelines to success protracted relative to their expectations (with some infinitely deferred!). This is not to suggest that much of the current activity is without merit. In fact, to the contrary, ideation remains one of the most difficult elements of innovation, surpassed only by finding successful forms of operational excellence in these same domains, as many of the InsurTech trailblazers are now experiencing.

The bigger point here is that the collective desire to take advantage of new technologies (especially open APIs) to transform the way life insurance (protection) is sold and managed is without precedent. We know from experience (taking guidance from Amara’s Law) that we are prone to over-estimating short-term progress, while underestimating the medium to long-term

impact of some of these changes. The industry might be doing better than we think.

In this regard reinsurers have a major role to play in framing new strategies and have reorganized to participate actively in these transformations. The question about the commencement of reinsurer involvement is not one of “if or when?”, but instead “how long ago?”

THE BEST-EVER CX

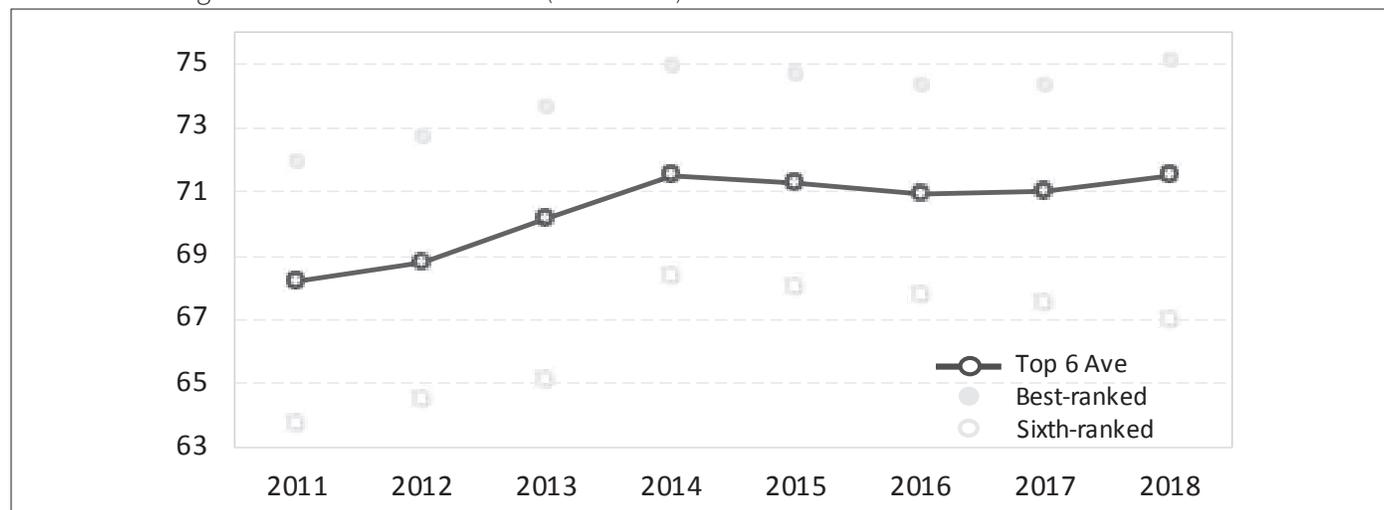
This claim should be uncontentious, although perhaps not obvious until one has taken a moment for contemplation.

After two decades of strategies aimed at putting the customer at the forefront, more recently supported by new technology capabilities, companies across a wide range of industries have successfully created customer experience outcomes never before seen at equivalent scale. Unfortunately, few of these are in the life insurance industry, at least for the time being.

This is not to say that there aren’t plenty of examples to witness of very poor customer engagement (certain airlines and telcos spring to mind), but when done well, the case for “best-ever” (in many domains) is a compelling one. There are also enough best-ever cases to have reshaped our collective rising expectations, which will not subsequently subside.

This is relevant context for life & health reinsurance industry, where NMG’s Business Capability Index (BCI) has reached 70 or higher for the past five years, a significant uptick from prior years (see Figure 2).²

Figure 2
The Rising Tide
Global BCI Ratings—Life & Health Reinsurance (2011–2018)



Source: NMG’s Global Life & Health Programmes

This broad-based performance uplift for reinsurers can be attributed to multiple sources, including the narrowing of the competitive gap between the six largest reinsurers (by total premiums). Additionally, reinsurers have deployed service-led segmentation strategies, better matching propositions to client needs (including global accounts), as well as broadened offerings to include financial solutions, longevity and technology solutions. We propose however that the most pervasive, and perhaps permanent factor is that reinsurers now place a value on the customer experience beyond a narrow assessment of the client P&L. Reinsurers have a much greater appreciation of lifetime client value and have derived regularly-reviewed metrics for its articulation and study.

AUTOMATION

In the 24 months prior to 2016, reinsurers had successfully installed (or received firm commitments for) 100 new automated underwriting systems (AUS) globally. In 2017, we named them the “Life InsurTech Pioneers,” making the point that these significant investments made by reinsurers should be included in an assessment of the life insurance industry’s early progress in InsurTech.

Reinsurers have since built on this momentum with the total number of reinsurer installations exceeding 250 at the end of 2018. Incumbency has carried some advantage, but it is noticeable that those recently-developed systems have done particularly well in the markets where they were originated.

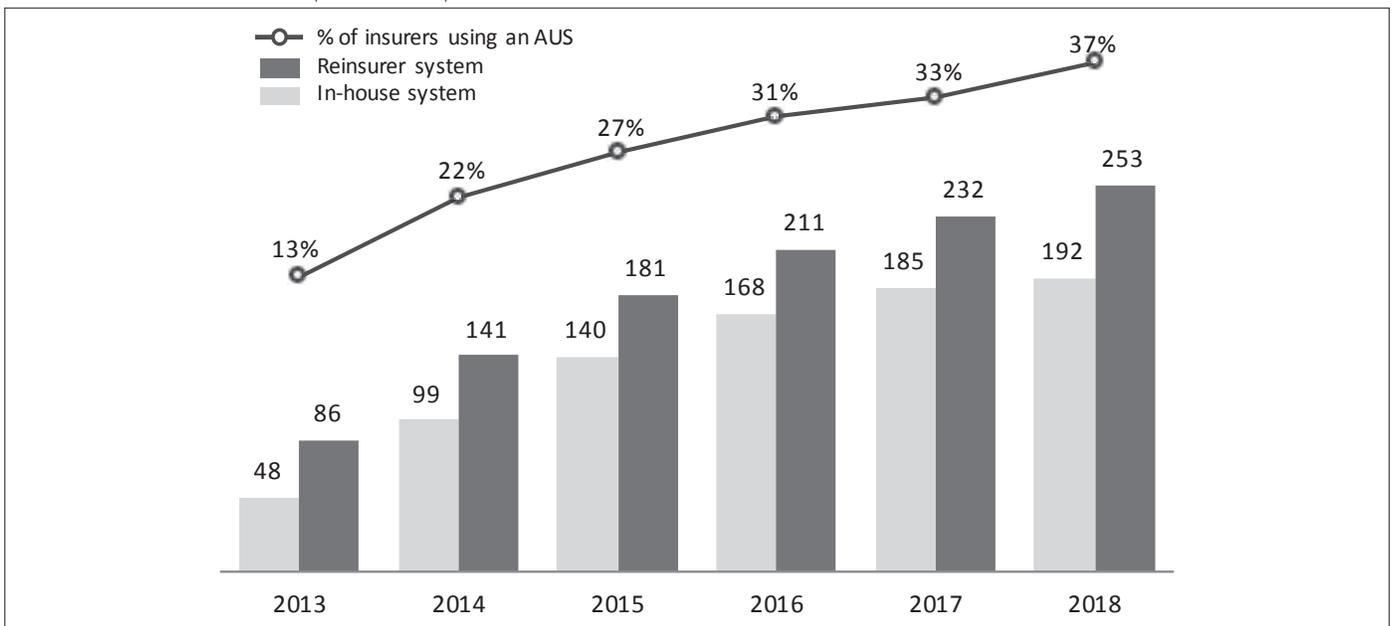
Evidence indicates clearly that the veracity of the underwriting rules engine is seldom if ever the reason for selection, with insurers’ assessments being driven instead by preferences for contemporary technology platforms, intuitive interfaces and the capacity to incorporate external data sources over time.

Insurers have in the meanwhile continued to develop and invest in in-house systems, although as we expected this trend has slowed, particularly after most reinsurers chose to double down on their AUS investments. With greater visibility of expanding AUS technology capabilities (not to mention rising development costs), the growth of in-house systems is set to taper further (see Figure 3).

It is important to note that a simple count of the number of installations is not sufficient for success. Reinsurer balance sheets are capital-intensive, and thus these investments need to translate into increased returns over time. Reinsurers have adopted different strategies, both aligned (where the AUS is made available only as a reinsurance client) and non-aligned. An increased proportion of reinsurer-owned systems were non-aligned in 2018, meaning that reinsurers may be willing to take a deferment of the ultimate objective (ceded premium).

Growth in automation makes for a great narrative, and the new efficiencies and minimum risk standards brought as a consequence are real. In this instance, automation does not mean machine learning. Today’s AUS mostly encode the decision frameworks used by human underwriters, and thus represent

Figure 3
AUS Profile & Penetration (2013–2018)



a digitization of the intellectual property built by the industry over the past century. This means that today's AUS may well be the last of the "reflexive question" systems prior to the launch of the next generation intelligent systems currently in development testing and beta deployment.

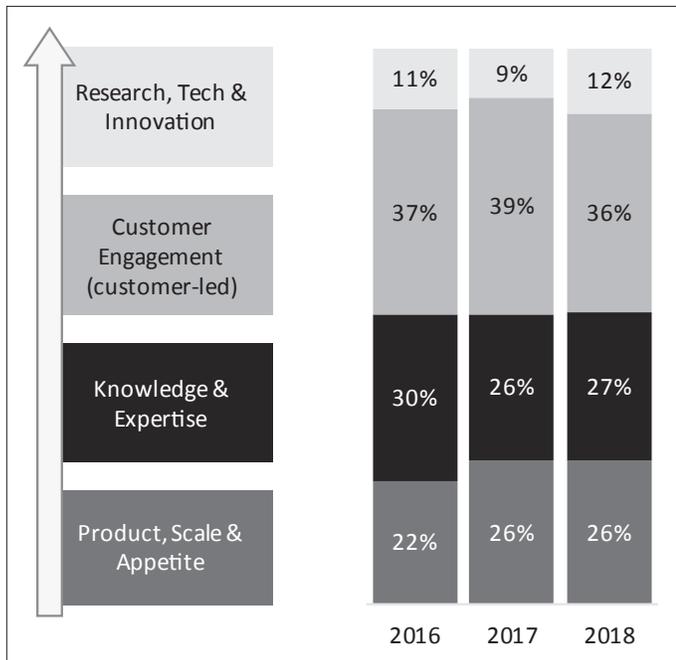
There is an explosion of new investment and activity in the areas of data & analytics, which applies to both pricing and underwriting. The U.S. and China are the leading markets in this respect, home markets for the world's tech giants, and where third-party data is currently relatively accessible at scale thereby

facilitating faster learning. In the U.S., 70 percent of insurers are currently using predictive analytics of some form (particularly around underwriting), and nearly all have plans to do so within the next 24 months. While still embryonic in most respects, the pace of adoption has massively exceeded that of traditional AUS platforms.

REINSURERS REDEFINE CUSTOMER ENGAGEMENT

Life & Health reinsurers clearly now engage as innovators, having morphed from narrower technical underwriting houses, to more customer-centric organizations focused on transformation.

Figure 4
Brand Associations—Life & Health Reinsurers (2016–18)



Unprompted and free-form feedback of insurance executives about reinsurer brands provide interesting insights (see Figure 4).

Nearly one-half of brand associations for reinsurers relate to measures of customer focus (for example, being flexible and good partners) and innovation (either in approach, or in technologies, solutions and leading insights). At the level of the individual competitor, this measure ranges between 30–60 percent, meaning that not all reinsurers have successfully made this transition.

What we've noted over an extended period is how the usually "hard to get" associations for "Research, Technology & Innovation" have successfully been captured by life & health reinsurers, particularly for being innovative.

Comparisons to an adjacent segment provide further insight. Life & Health reinsurers have made the transition to an innovation engagement approach in a way that P&C reinsurers have yet to. P&C reinsurers have strong customer-led brand associations, but brand associations seldom suggest that "being innovative" is a leading feature of client experience (see Figure 5).

Figure 5
Leading Brand Associations (2018)

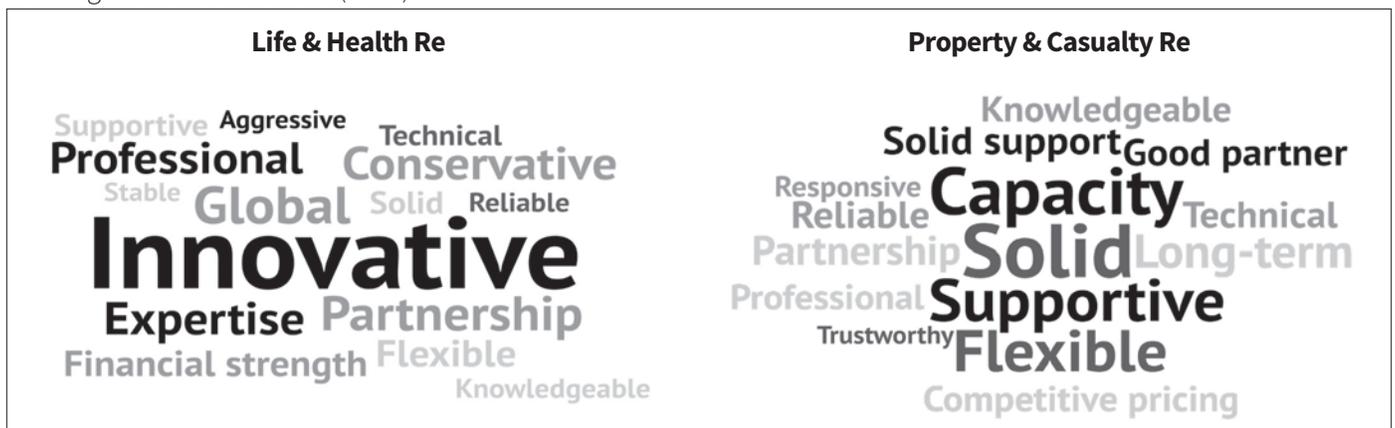
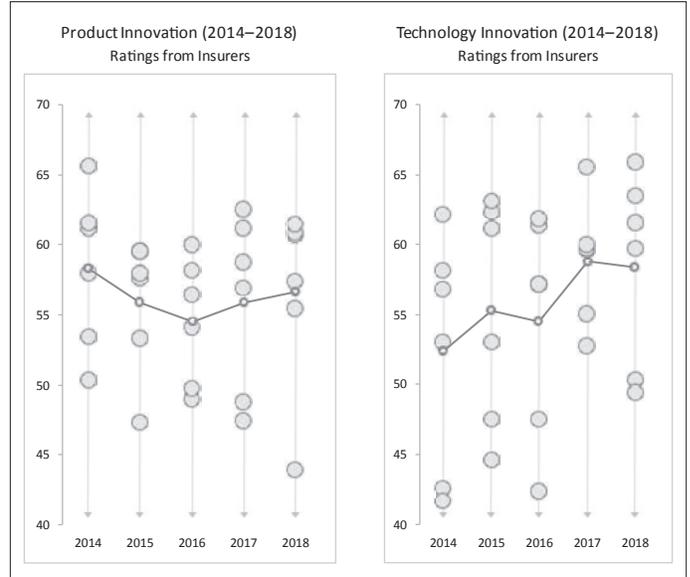




Figure 6
Shifting Goal Posts—Reinsurer Innovation



BEING INNOVATIVE – A MOVING TARGET

In the context of life & health reinsurance, ‘innovation’ has started to take on a different meaning.

Product innovation has long been a cornerstone of a value-added reinsurer offering for Life & Health reinsurance. Low ratings for innovation (compared to other factors) indicated that this is very difficult to do well and is thus a key source of differentiation.

Ratings for reinsurers’ product innovation have declined over the past five years, while ratings for reinsurers’ innovative contributions of a technology nature have risen sharply. Across 2018, averaged across all markets, several reinsurers attract higher ratings for technology innovation than they do in product innovation (see Figure 6).

So while it would be a stretch to suggest that reinsurers are fast becoming technology companies, it would be entirely fair to recognize their success investing in and building technologies to support the transformation challenges of insurers.

A PARTING THOUGHT

Having participated in many meetings with reinsurance executives over the past ten years, the degree to which the conversation topics have changed is remarkable. Partly this has to do with scope, as life & health reinsurance businesses are so much broader today. Perhaps most importantly it also has to do with the pace of change and how quickly new ideas are adopted into operational reality. This is an incredibly exciting time for the life insurance industry, particularly for a change agent like a reinsurer. By extension, it is also therefore one of the most demanding periods, and one in which competitive positioning can be most dynamic. ■



Mark Prichard, fellow of the Faculty of Actuaries, is co-founder of NMG Group and CEO of NMG Consulting. He can be contacted at Mark.Prichard@NMG-Group.com.

ENDNOTES

- 1 More than 10,000 insurance executives have participated since the Study’s origination
- 2 The BCI is measure of the perceptions of overall execution and capability among reinsurance partners, as indicated by their insurance customers



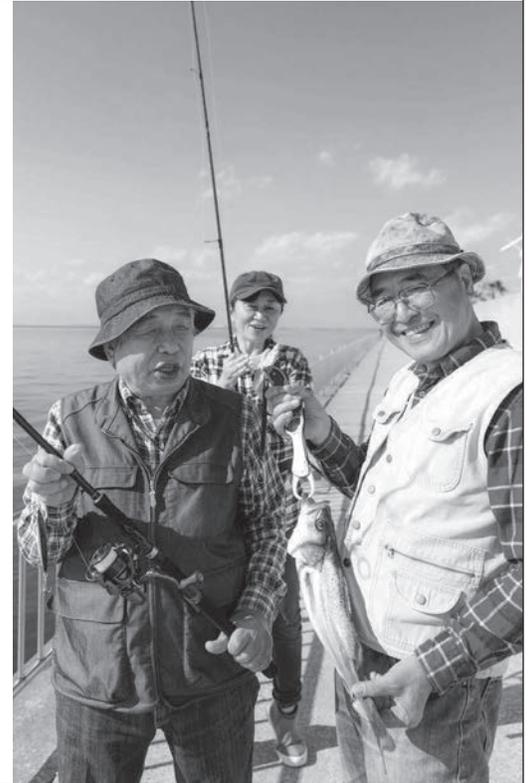
LIVING to 100

SOCIETY OF ACTUARIES
INTERNATIONAL SYMPOSIUM

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Save the Date

Mark your calendars for the 2020 Living to 100 Symposium, Jan. 13–15, 2020, in Orlando, Florida. Expert presenters will explore the latest longevity trends, share research results and discuss implications of a growing senior population. This prestigious event brings together thought leaders from around the world to share ideas and knowledge on increasing life spans. Registration and conference details will be available in summer 2019.



Participating Organizations

The following organizations have agreed to participate in this research endeavor with the Society of Actuaries as of August 2018. To view the current list, visit Livingto100.SOA.org.

Actuarial Society of South Africa

Actuaries Institute Australia

American Academy of Actuaries

Canadian Institute of Actuaries

Conference of Consulting Actuaries

Employee Benefit Research Institute

International Longevity Centre–UK

Office of the Chief Actuary, Canada (within the Office of the Superintendent of Financial Institutions)

Pension Research Council and Boettner Center for Pensions and Retirement Research of the Wharton School

The Actuarial Society of Hong Kong

Investments and Wealth Institute

American Geriatric Society

International Actuarial Association

LOMA

LIMRA

Government Actuary's Department (UK)

The Institute of Actuaries of Japan

Women's Institute for a Secure Retirement (WISER)

Institute and Faculty of Actuaries

Visit LivingTo100.SOA.org for more information

Natural Catastrophes, Emerging Insurance Markets and Reinsurance

By Carlos Arocha

Extrême weather makes headlines frequently. Last winter, the Northern Hemisphere endured extreme cold weather. And summers are becoming exceedingly hot. This climate volatility has triggered several large natural catastrophes. Insurance loss concentrations caused by natural catastrophes seem to take place every 5–7 years. In 2017, a peak was reached. It was an outlier year. According to Swiss Re,¹ a leading global reinsurer, the havoc caused by natural and man-made catastrophes was \$350 billion, of which \$165 billion were losses paid by the insurance industry worldwide.

In contrast, 2018 experienced much lower catastrophic claims activity, estimated at \$85 billion for the global re/insurance industry.² The largest natural catastrophe losses originated from hurricanes making landfall in the U.S. (Michael and Florence), wildfires in California, and from typhoons and floods in Japan.

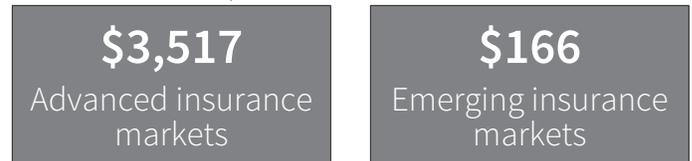
Over the past 10 years, annual catastrophic losses adjusted for inflation have reached about \$220 billion, or 0.3 percent of global GDP.³

Notwithstanding, international reinsurer capital markets remain resilient. Aon, a global re/insurance broker, estimates that worldwide reinsurance capital stood at \$585 billion at the end of 2018, and that this capital has increased by nearly 30 percent since 2011.⁴ Excess reinsurance capacity continues to exist, despite the increasing demand for reinsurance demand everywhere. In addition, most insurance markets worldwide have ready access to reinsurance solutions. Are emerging markets lagging?

THE GULF

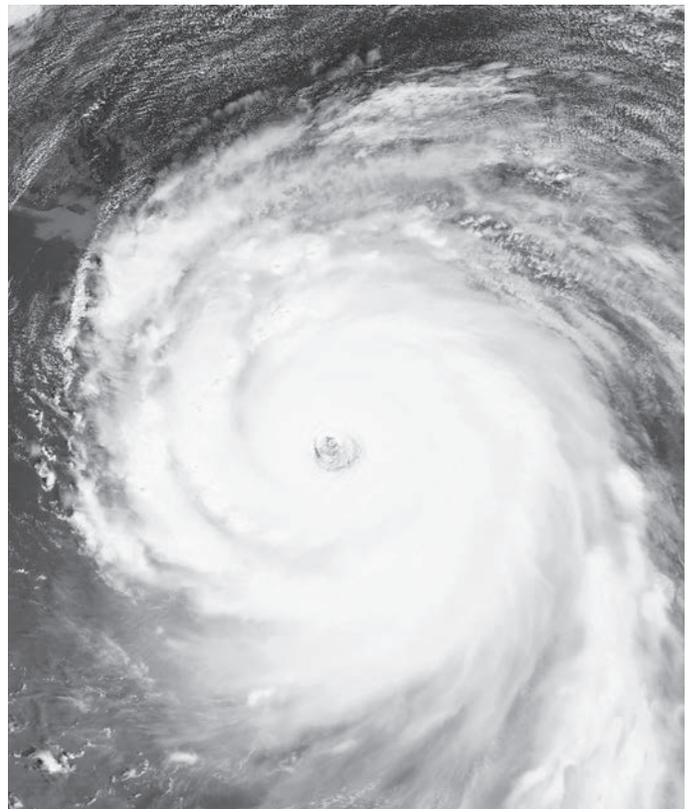
There is an enormous gulf between the advanced and the emerging insurance markets, perhaps much larger than in any other industry, bar banking and specialized financial services. Whereas insurance density (i.e., annual premiums per capita) is \$3,517 in advanced markets,⁵ the emerging markets⁶ reach a mere \$166 (see Figure 1).⁷

Figure 1
Annual Premiums per Person¹



If there is an excess reinsurance capacity and solutions are readily available in most regions of the world, why is the gap so large? What can the global reinsurance industry contribute to narrow this gap? Let's first look at possible ways that may help in narrowing the existing gap and bring coverage to a greater part of the population.⁸ These measures are:

1. Promote insurance and financial inclusion—the fact that products are seemingly complex can be addressed by government action such as funding programs that promote financial knowledge and allowing access to financial services to millions who do not currently have the possibility to buy insurance covers.
2. Work on regulatory change—copying and pasting regulatory solvency regimes from developed insurance markets is a recipe for failure. Risk-based regulation is taking hold in Latin America, where many countries are in the process of



overhauling solvency regimes. However, it is important to balance the need of solvency regulation with the incentives for insurance companies to introduce new and innovative products without having to be embarked in overly complex process. Solvency regimes must be adapted to the features of the market in question.

3. Strengthen product innovation—insurers need to focus in the development of products that cater to the needs of policyholders, and not merely spend their full energy in designing “anti-fraud” products. Insurers can tap into the experience available from global reinsurance players, who offer not only capacity but also knowledge transfer. A win-win situation may be achieved.
4. Improve the ability to assess risk—actuarial skills are urgently needed in most emerging insurance markets. Also, it is important to build robust modeling skills, where other insurance professionals may also play a crucial role.
5. Create partnerships between government and private sector—this is probably a “catch-all” category. The above measures would greatly benefit from fruitful relationships between government and players of the insurance sector. This is not only about regulation: it is creating more fertile ground to sow the seeds for strong insurance market growth.

REINSURERS HELPING PROMOTE INSURANCE AND FINANCIAL INCLUSION

Reinsurance solutions represent the most efficient vehicle to transfer risk to another party. The cost of reinsurance is often less than that of issuing equity of debt, with the added advantage that no shareholder is going to frown at an insurer getting additional source of capital in the form of reinsurance arrangement, as opposed to the alarm that asking for additional equity of debt in capital markets may trigger.

Smaller insurance companies, including those in emerging markets can readily benefit from reinsurance capital to expand their operations, and to underwrite large risks that otherwise would not be appropriate with their own capital base. Several leading reinsurers are currently active in micro insurance (insurance solutions for low income individuals) as well as inclusive insurance (insurance for those who currently have little or no access to insurance services regardless their income level). With the promise of making the world economy more resilient, reinsurers may in fact help in the promotion of insurance and financial inclusion.

REINSURERS PARTICIPATING IN INSURANCE REGULATORY CHANGE

With overhauled risk-based regulatory solvency paradigms, like Solvency II or the Swiss Solvency Test, the reinsurance industry

is better positioned to serve as a risk mitigant. Whereas older regulatory schemes did not give appropriate credit for ceded reinsurance, by definition, principles-based regulation now allow insurers to determine a lower solvency capital requirement, thanks to the ability to deduct exposures being ceded to reinsurers. This is particularly true in cases where the insurance company develops an internal risk model, but even standard models consider the effect of reinsurance.

Reinsurance can help narrow the gap.

REINSURERS HELPING WITH PRODUCT INNOVATION

By having access to many international markets and a diversity of insurance companies, reinsurers have become knowledge companies, where insurance innovation can be brought about to emerging insurance markets.

Full-service reinsurers often participate in the product development process of insurance companies, by providing expertise in underwriting, technical publishing, and training services.

Another tool is technology. As emerging markets have less of an established distribution network of insurance, innovation and technology may have the greatest impact in such markets. Reinsurers actively seek ways to foster the development of new technologies.

Thus, reinsurers have the means to be at the forefront of product design and development to help narrow the existing gap between advanced and emerging insurance markets.

REINSURERS HELPING WITH THE ABILITY TO ASSESS RISK

By the nature and scope of their activity, global reinsurers have developed valuable expertise in assessing risk. Many a risk, like the risk of natural catastrophes or the risk of pandemics, require large data repositories and the development of highly sophisticated risk models. The resources to build and maintain these models are well beyond the capabilities of smaller insurance companies, and even if they had these resources on hand, business needs would probably not warrant the associated expense. In contrast, global reinsurers’ scope of operations justifies the construction of such risk models.

In addition, the in-house knowledge is often used to attract new customers, via the assessment tools provided by reinsurers and reinsurance brokers that help companies with their risk assessment tasks.



REINSURERS PARTICIPATING IN PARTNERSHIPS BETWEEN THE INSURANCE SECTOR AND GOVERNMENTS

The world's leading reinsurers have been engaged in partnerships with government bodies. Recently Swiss Re entered a partnership with the government of Heilongjiang Province in China and the Sunlight Agriculture Mutual Insurance Company of China, to provide agricultural reinsurance protection.⁹ This is just an example of fostering dialogue between the private and public sectors, and with the skillset developed over the years by the leading reinsurance companies, solutions that benefit society can be brought about.

In fact, reinsurers can help make the world economy more resilient.

WHAT ABOUT ACTUARIES?

Actuaries have the right skillset to play a critical role in helping designing products that meet real needs, particularly in those countries where insurance density and penetration are relatively low. Innovation and the use of technology may help narrow the gap and by acknowledging the power of partnerships between governments and the private sector, burden derived from being uninsured or underinsured may be eased. ■



Carlos Arocha, FSA, is managing partner of Arocha & Associates, an actuarial consulting firm based in Zurich, Switzerland. He can be contacted at ca@ArochaAndAssociates.ch.

ENDNOTES

- 1 *Sigma* 2/19, Swiss Re Institute.
- 2 *Ibid*.
- 3 *Ibid*.
- 4 *Reinsurance Market Outlook*, April 2019, Aon.
- 5 Advanced insurance markets are hereby defined as the US, Canada, Western Europe (excluding Turkey), Japan, Hong Kong, Singapore, South Korea, Taiwan, Oceania, and Israel.
- 6 Emerging insurance markets are hereby defined as Latin America, Central and Eastern Europe, South and East Asia, the Middle East (excluding Israel) and Central Asia, Turkey, and Africa.
- 7 *Sigma* 3/18, Swiss Re Institute.
- 8 *Closing the Nat CAT Protection Gap in Latin America*, Abraham, M. and Arocha, C., 2018 Society of Actuaries Annual Meeting Presentation.
- 9 <https://www.globalreinsurance.com/swiss-re-partners-with-chinese-government-in-reinsurance-scheme/1419286.article>

The Bulletin Board

362 Thank-yous

By James Miles

During the first quarter of 2019, 362 members of the Reinsurance Section provided guidance to the section council by responding to a brief online survey. The survey response rate of 19 percent is outstanding and reflects the active interest of the members in the section. Thank you!

The section council uses periodic member surveys to help the council focus on the topics that are of current interest to the members of the section. In this year's survey, the top six topics based on member responses were:

1. Mortality improvement
2. Treaty remediation
3. Impact of accelerated underwriting and predictive modeling on mortality estimates
4. Regulatory changes including: capital requirements, accounting rules, and tax laws
5. Insurance industry disruptors
6. Annuities and longevity

The section council is using this information to plan and provide section-sponsored research, webcasts, newsletter articles,



meeting sessions, and seminars that are in line with what the section members want.

The section newsletter, updates on emerging issues and trends, and professional education were the top-three ranked responses as the most valuable aspects of section membership.

Twenty percent of the respondents indicated an interest in volunteering. In the past, time was noted as the main reason for not volunteering. Don't let time be a barrier to getting involved and making an impact. Contact one of the section council members to find out what opportunities await a willing volunteer.

Section council member names are on page two of this newsletter and on the section webpage. Send them an e-mail! Over 80 percent of the respondents listed e-mails as their preferred form of communication. ■



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