



Our Viewpoint



By J.C. Brueckner, President & COO

As 2008 draws to a close, I can honestly say that I have never felt so much uneasiness in the Life Insurance industry as I feel today. The effects of economic pressures on financial results have many companies fearing

the worst as they prepare to report year end numbers. In many situations, the companies most concerned have experienced positive results for their core businesses but still find themselves facing a financial crisis. All of us have been receiving requests from this State regula-

tor or that rating agency. All with the same basic question: What is your exposure to this financial risk or that risk? As industry leaders, we are all asking ourselves --- how did we get here?

It is true that there are many

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Get The Most Out Of Your Monte Carlo Programs

By Katy Curry, FSA, MAAA, Actuary - Finance



Autumn in Kansas City...when my mind turns toward warm sweaters, apple orchards, and, of course, annual X factor analysis. As I pull my jackets out of storage, I also blow the dust off of my X Factor Monte Carlo program, as it has been sitting idle and abandoned in the year since its last run.

But that was then...

Generali USA's Monte Carlo analyses have been working a lot of overtime, lately. And the days of a single mortality analysis for X factor work are long behind us. Monte Carlo simulations can offer incredibly useful and elegant solutions to assessing a variety of complex insurance questions, and not just for complying with XXX regulation. In addition to being fairly

easy to implement, Monte Carlo analyses can be a great initial foray into the world of stochastic mortality analyses (or a good way to enhance a company's understanding of their existing stochastic models). Companies which perform XXX compliance internally can likely take advantage of existing in-house Monte Carlo capabilities and can get some basic stochastic

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View On...Mark Laulainen

The Viewpoint (TV) is pleased to feature another installment in our View On series. Each issue features an interview with a key player within the Generali USA circle. The objective behind

'View On...' is to profile members of our team and give everyone the opportunity of hearing directly about their respective responsibilities and business activities, their involvement and contribution to our business, and informa-

tion about market issues and/or challenges affecting business initiatives. Individual ideas and views on current business developments will be shared. Finally, it will provide an interesting personal perspective

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mortality models up and running relatively quickly.

X Factor Analyses

Broadly speaking, a Monte Carlo analysis is a statistical technique that generates a series of stochastic simulations. The results of all of the simulations are aggregated, and this creates a picture of a range of the possible outcome scenarios. For X factor analysis, Monte Carlo simulations are used to create a range of possible total death claims scenarios for a portfolio of risks, using a company's anticipated mortality assumptions. If a company's actual portfolio claim experience falls within a pre-set range of simulated results, then the company's actual claim experience can be considered consistent with their anticipated mortality. Otherwise, the company's actual claim experience cannot be considered consistent with anticipated mortality. This

analysis can be performed even when data is not fully credible.

In the rest of this article, I'll describe a few other applications of Monte Carlo techniques. In all of these applications, the basic structure of the Monte Carlo analysis is the same as the X factor Monte Carlo analysis. Only minor programming modifications are required in order to customize the simulations for their intended application.

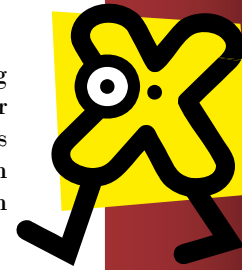
Assessing Pricing Mortality Assumptions

Classic mortality studies that provide actual-to-expected (A/E) ratios are frequently relied upon to assess the appropriateness of an underlying set of pricing mortality assumptions. However, a certain level of credibility is required in the study for the results to be particularly meaningful. Developing sufficient credibility can take time, and this can be par-

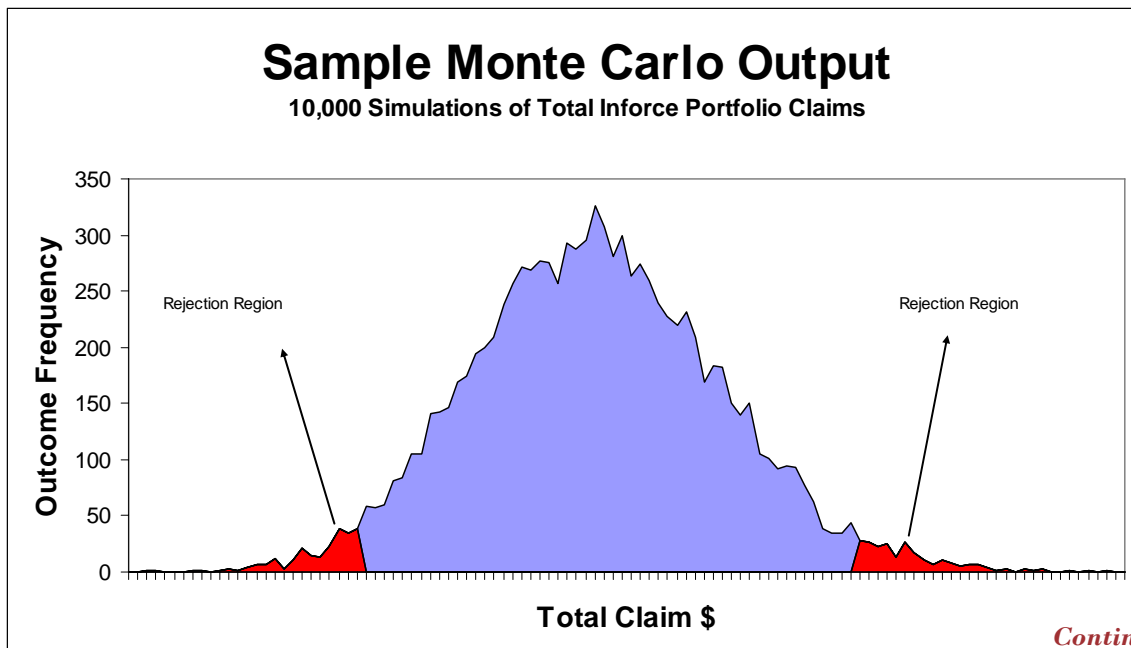
ticularly challenging for new products or finer details, such as mortality for certain issue ages or certain durations.

A Monte Carlo analysis developed to study the appropriateness of pricing mortality assumptions can provide additional insight, particularly when credibility is low. Imagine a situation where a pricing cell of interest, say female preferred risk with issue ages 60-65, has an A/E ratio of 18%, where the expected is based on current pricing mortality assumptions. However, the credibility in this cell is low. Did you just get lucky? Were your pricing mortality assumptions too high? A Monte Carlo analysis for this cell can answer questions such as:

- If my pricing mortality assumptions are right,



For X factor analysis, Monte Carlo simulations are used to create a range of possible total death claims scenarios...



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what are the chances of observing such a result in this cell?

- What range of results would cause me to reject/not reject the appropriateness of my pricing mortality assumptions?

In this example, if the Monte Carlo analysis suggested that the chances of observing an 18% A/E ratio (or something even lower) in this cell was 35%, then you might conclude that this 18% A/E ratio may not be very meaningful. Technically speaking, you conclude that there is not sufficient evidence to reject the underlying pricing mortality assumptions. If, however, the analysis suggested that the chances of observing an 18% A/E ratio (or something even lower) were less than 1%, then you might have reason to conclude that the pricing mortality assumptions were not appropriate, or at least have a reason to do a little more investigation.

Estimating Incurred but not Reported (IBNR) Claims

Does estimating quarterly IBNR claim reserves give your valuation actuary fits? Classical IBNR estimation methods are often retrospective and provide only a point estimate. This offers only a limited view of the potential IBNR liability. But, if your portfolio risk

profile is changing rapidly or you'd like to get a feel for a reasonable range of potential IBNR claims, then a Monte Carlo approach can provide that additional insight.

A Monte Carlo analysis can be designed to not only give you a distribution of potential claims for your current inforce portfolio (the "Claims" part of IBNR claims), but also it can be modified to simulate whether or not that claim is in an IBNR status (the "IBNR" part of IBNR claims). Generally, the only additional information required for that modification is an analysis of time lags between the date of death and the claim reported date, something that is probably already produced on a fairly regular basis. The output of this Monte Carlo analysis can provide a point estimate for the IBNR claims. This analysis can also answer questions such as:

- What are the chances that my IBNR reserve could be \$5M too high/low?
- What is the impact of setting my IBNR reserves at the 65th CTE?
- What range of IBNR claims could be reasonably expected?

Volatility Risk for Enterprise Risk Management (ERM)

In a given year, what's a worst case outcome for total claims from your portfolio due to its

inherent volatility? Mortality volatility risk is a widely recognized component of life underwriting risk, and it is frequently a part of a company's ERM assessment. Monte Carlo methods offer a great way for assessing this risk.

As mentioned before, a Monte Carlo analysis can be designed to provide a distribution of potential total claim results for a portfolio of risks. In an ERM application, this analysis can answer questions such as:

- What is the standard deviation of potential total claims in my portfolio?
- What is the 99.5th percentile of potential total claims?
- What range of results is considered within risk tolerance?
- What range of results should trigger a flag on the risk management committee's dashboard?

Implementation

If your organization doesn't already have a Monte Carlo model available, there is a wealth of literature available on designing Monte Carlo models, improving run-time, and determining the optimum number of simulations. While building models from scratch is feasible for many organizations, there are also a wide

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variety of pre-built tools, from affordable spreadsheet add-ins to independent software geared specifically for simulation.

Like any model, the "garbage-in, garbage out" motto applies. Designing the model is a straightforward process. The bulk of effort should be devoted to ensuring the underlying assumptions (mortality assumption, in the applications that are described here) are properly specified.

Conclusions

While the applications described here all focus on assessing mortality risk, Monte Carlo techniques can be deployed to explore a variety of other risks. This article has just scratched the surface. Whether your organization is a pro at stochastic analyses or just starting to explore the concept, Monte Carlo analyses can be a valuable tool in the stochastic toolbox. Powerful, simple to implement, and

easy to interpret, Monte Carlo methods shouldn't stay on the shelf!

Katy Curry, FSA, MAAA joined Generali USA in 2003 as Actuary - Finance. Her responsibilities include experience studies, XXX regulation and cash flow testing. Prior to joining Generali USA, Katy was with Fortis Benefits (now Assurant Benefits).



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Generali USA Associates Receive Designations

Please join us in extending congratulations for a job well done to these Generali associates:

Mike Augustine, Senior Underwriting Consultant, recently received a Fellow, Academy of Life Underwriting designation (FALU) with distinction, and will be honored at the Association of Home Office Underwriters Annual Meeting in June.

Martha Grimsley, Senior Underwriting Consultant, received a Fellow, Academy of Life Underwriting designation (FALU).

Pamela Bergsten, Senior Underwriting Consultant, earned an Associate, Academy of Life Underwriting designation (AALU).

Kristin Ringland, Director of Underwriting, received a Fellow, Academy of Life Underwriting designation (FALU).

Carolyn Covington, Associate Actuary, received an Associate of the Society of Actuaries designation (ASA).

Naomi Khadavi, Associate Actuary, earned an Associate of the Society of Actuaries designation (ASA).

Amanda Morrison, treaty counsel, became a member of the Missouri Bar after passing the bar exam in July.



Pictured from the left: Pam Bergsten, Mike Augustine, Naomi Khadavi, Martha Grimsley, Carolyn Covington



Pictured from the left: Amanda Morrison, Kristin Ringland

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**Mark Laulainen,
Marketing and
Underwriting
Vice President,
Group
Reinsurance**

on them, e.g. hobbies, interests.

This installment spotlights Mark Laulainen, Marketing and Underwriting Vice President, from our Group Reinsurance Division.

TV: *Mark, please introduce yourself to our readers.*

Mark: I just celebrated 32 years in the Insurance Industry- 8 with Primary Insurance and 24 in Reinsurance! I have been involved in many aspects of the group life/health business and have always lived in Minneapolis.

TV: *Can you summarize what you do at Generali USA?*

Mark: I am a “marketing underwriter” which essentially is a mix between an underwriter and a sales person. That model seems to be received well in the marketplace as the insurers we talk to appreciate the fact that the salesperson also has an in depth knowledge of the intricacies of the products coupled with an empathy of the issues they face in the marketplace. I travel around the US calling on Life Carriers and Reinsurance Intermediaries to educate them about Generali USA and the products we offer, and suggesting to them that they utilize us as a reinsurance partner.

TV: *How did you become part of Generali USA’s Group team and what progress have you had over the last couple years?*

Mark: I had “sold out” shortly after 9/11 and left the risk taking environment, taking on an executive position at a firm that specialized in accounting for, and running off terminated blocks of business for various insurers, reinsurers and state entities. Recognizing the new job was “not me”, I phoned Terry Dickinson and said, “you know....” Serendipitously, he was in the process of setting up a unit dedicated to Group Reinsurance for Generali USA. Having worked together for over 17 years, it was a comfortable fit for both of us. I was of course a bit nervous about Todd and Steve’s opinion of me joining the team as I had only worked with them for around 12 years!

Over the last couple of years, I have enjoyed helping us grow. From the initial sales visit or introduction to an insurer, all the way through the request for proposal stage to delivery of the quote and ultimately being awarded a new program is the best! It is encouraging to have insurers place their faith and confidence in Generali USA.

TV: *What are your key products and services?*

Mark: Generali’s group area is focused on Group Life and

AD&D and Accident related products. While we have some minor ancillary products, the Group Life and AD&D is our primary focus. We truly feel we can bring value to our customers given our length of time in the industry.

TV: *What can you tell us about your main business objectives and focus for 2009?*

Mark: There is much turmoil in the Global financial markets and I plan on emphasizing Generali’s financial strength and longevity to help differentiate us from many of our competitors. If we couple our Corporate strength along with our personal knowledge of the business, I feel we will be an attractive business partner to our target prospects.

TV: *About the Group reinsurance market, can you give us a short overview of the current reinsurance market conditions and identify the major challenges reinsurers will face in 2009? What do you do to help them meet these challenges?*

Mark: From my perspective, the major challenge is winning new business. It seems to me that incumbent reinsurers are holding tight to the business they have and we have witnessed some unusual pricing decisions out there. Nothing

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new perhaps for any of us, but the intensity to retain business seems greater. From a group perspective there continues to be pressure to offer very high guarantee issue limits and fairly liberal benefit plan designs to employer groups. Employees are also seeing a squeeze on how much disposable income they have left over and on which benefits they wish to spend it on. This can affect the amount of insurance they buy and subsequently how much a carrier cedes to us. As far as helping the insurers face these challenges, we focus on how Generali USA can be a partner with them and help them with plan design issues and offering a reinsurance program that can help them compete in the market.

TV: Enough about the business. We would like to hear more about you. What do you like most about your job? What do you least like about your job?

Mark: I touched on it earlier, but the thing I like most is winning a new account. It doesn't matter if it's large or small- I just like to win. It is particularly rewarding to talk to a complete stranger and ultimately grow that encounter into an active business relationship with Generali USA. To answer the second part of the question- "Steve"...just

kidding!!! Actually the part I like least is competing with irresponsible competition. It drives me crazy to look at the exact same underwriting data as another reinsurance underwriter at another company and witness some of the outcomes.

TV: What are the most memorable moments in your career?

Mark: The tragedy of 9/11 is the most memorable moment of my career. An assault on our Country, significant business losses and, most importantly, the lives lost of people I worked with. Never Forget.

TV: Do you enjoy sports?

Mark: Passively, I like Hockey, Baseball, Football and NASCAR (I do speed occasionally when I drive!). As a participant I enjoy bicycling, swimming and Frisbee golf.

TV: What do you enjoy doing when you finally have a chance to be at home or on vacation? What are your hobbies?

Mark: My favorite down time activity is spending time at our lake home, on the dock or in the boat, enjoying the Northwoods of Wisconsin with my wife of 30 years. I also read a wide variety of books, ranging from history books to self improvement to junk crime fiction.

TV: Finally is there a message or moral in the form of an anecdote you would like

to share with us?

Mark: An anecdote that I've always been fond of is: "The harder you work the luckier you get."

TV: Mark, it's been a pleasure talking to you. Thank you for sharing your time with us. Please share with our readers how they can get in touch with you. Finally, we wish you every success with your plans for 2009.

Mark: It's been my pleasure. My email is mlau-lainen@generaliusa.com and my phone is 816-412-3753.



As a participant, I enjoy bicycling, swimming and Frisbee golf.

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forces at work in this crisis that made it difficult for anyone to have anticipated the “perfect storm” contributing to the financial downturn. But at the same time, our Industry prides itself in our ability to analyze and anticipate risk, thereby providing our customers with the comfort that we will be there when they need us. Under closer examination, it appears that over the past decade our Industry has moved away from a risk analysis approach to a risk taking mode.

Many companies have abandoned the industry’s traditionally conservative approach to business in order to maximize gains by participating in complicated risks. This shift has occurred despite the many tools we have available that help us better understand

these risks. One of those tools, Monte Carlo simulations, is presented in Katy Curry’s article in this addition of the Viewpoint. Embedded Value Analysis and a well structured risk management program are other tools available to all of us to minimize our exposure to risks. But like any model or approach, it is only as good as the assumptions you put into them.

This year end will be a real test for our Industry. It will expose the companies that have pushed the envelope in risk taking. It will also show us which companies have held firm in the conservative approach to our business. Unfortunately, despite the fact the survivors will be greater in number, I think we will all hear much more about the companies that failed.

Fortunately, you can count Generali as one of the survivors. Generali maintains a very conservative approach to business which has allowed it and its subsidiaries to grow while maintaining profitability even during difficult market conditions. After the books are closed at year end, our parent company will remain among the most successful global insurance companies. They have held true to their conservative approach to the business to ensure that their pact with the customer is not broken. I hope that you find your company in a similar position after year end reporting is completed.

Generali USA Life Reassurance

Editorial Team

Name	E-Mail Address
J. C. Brueckner	jcbrueckner@generaliusa.com
Amy Cascone	acasccone@generaliusa.com
David Gates	dgates@generaliusa.com
Gretchen Johnson	gjohnson@generaliusa.com

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We value your business!