



Article of the month:

Risk management with Tail Quasi-Linear Means

Nicole Bäuerle, Tomer Shushi (Annals of Actuarial Science)

We generalize Quasi-Linear Means by restricting to the tail of the risk distribution and show that this can be a useful quantity in risk management since it comprises in its general form the Value at Risk, the Conditional Tail Expectation and the Entropic Risk Measure in a unified way. We then investigate the fundamental properties of the proposed measure and show its unique features and implications in the risk measurement process. Furthermore, we derive formulas for truncated elliptical models of losses and provide formulas for selected members of such models. [Read More](#)

Actuarial Models

Discussion on 'Multivariate modelling of multiple guarantees in motor insurance of a household'

Stanislas Roth (European Actuarial Journal)

The main challenge for pricing actuaries working in a non-life insurance company is to avoid adverse selection through the most possible efficient pricing, i.e. a pricing which maximizes the potential profit in a usually very competitive environment. The standard approach to do so consists in developing several multivariate risk models predicting the frequency and the severity of each of the perils covered by the insurance package to be subscribed by the policyholder, considering the individual's characteristics and his/her claim experience over a fixed time horizon.

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Financial Risk

The Side Effects of Shadow Banking on Liquidity Provision

Teodora Paligorova, João A. C. Santos (SSRN)

Shadow banks had a negligible presence in the US corporate loan market in the 1990s, but by 2016 they funded about 45% of the outstanding corporate term loans. Consistent with banking theories on liquidity provision, shadow banks remained absent from the credit line business. Nonetheless, they had a negative impact on the liquidity insurance provided by credit lines. The arrival of shadow banks increased competition in the term loan business and triggered a substitution of traditional term loans that amortize linearly with bullet loans that are paid at maturity. These changes led to the exit of banks, in particular those with lower risk appetite, not only from term loans but also from credit lines that are part of the deals containing those term loans. As a result, credit line syndicates have become more concentrated and funded by riskier banks, thereby, reducing the liquidity insurance they offer to corporations. [Read More](#)

Quants bring ‘tritych’ of variables to risk measurement

Mauro Cesa (Risk.net)

Value-at-risk and expected shortfall (ES) are ubiquitous in finance. They are used by banks and asset managers to estimate the risk of portfolios. Regulators use them to set capital requirements. But the metrics have well-known drawbacks. Both VAR and ES are backward-looking, relying on the past to predict the future. The methodologies only consider returns and volatility, ignoring the underlying scenarios and factors that determine performance. And while they provide a reasonable measure of the risk profile of linear, long-only portfolios that invest in a single asset class, the results need to be taken with a grain of salt when dealing with more complex structures, such as those with hedges or non-linear payoffs. [Read More](#)

Applying existing scenario techniques to the quantification of emerging operational risks

Michael Grimwade (Risk.net)

It is emerging operational risks that are habitually cited as keeping executives awake at night. These risks are dynamic and inspire the fear of the unknown, and it is precisely these characteristics that make their quantification so challenging. While there are no perfect solutions, this paper sets out techniques for

- identifying systematically emerging threats, their timescales, and interrelationships (eg, feedback loops and domino effects);
- quantifying operational risks through structured scenario analysis processes that analyze the drivers of impacts and likelihoods; and
- validating the outputs of scenario analysis through backtesting against internal and external data sources. [Read More](#)

Viewpoint: Spatial finance has a key role

Ben Caldecott (IPE)

More geospatial data is being collected than ever before. New generations of tiny satellites are flying overhead in low earth orbit taking high resolution images of every point on planet earth every single day. These constellations, the largest of which currently consists of ‘cube sats’ (at 10cm x 10cm x 30cm in size) that allow planetary-scale change on a daily basis to be observed. These are combined with larger and often more specialised platforms and earth observation ‘missions’ often funded by governments – for example, US Landsat Missions and the EU Copernicus Programme. The use of drones to complement traditional forms of aerial observation is also becoming more widespread. When combined with artificial intelligence (AI) to automatically scan and interpret this vast amount of visual data on the cloud, unprecedented capabilities are becoming available. These rapidly growing data mountains can then feed increasingly sophisticated predictive models to generate more and more insights and results. [Read More](#)

Trending topics

Predictive Analytics and Futurism

Dave Snell (SOA)

Way back in the late 1970s, Digital Equipment Corporation (DEC) and Carnegie Mellon University developed one of the world's first commercial artificial intelligence (AI) expert systems, called R1. R1 was written in a variant of Lisp¹, and it had dozens, if not hundreds of rules. It was designed to handle the complicated and interacting constraints involved in configuring the VAX 11/780 series computers for specific customer installations. The research effort was led by John McDermott, and a running joke among the team was the comment, "I wanted to be a knowledge engineer, and now I am one."² By the time I got involved in AI in the early 1980s, the line was often restated as, "Last week, I didn't know what a knowledge engineer was, and now, I am one." The analogy I wish to make here is that actuaries may be about to assume a new role that we didn't know about just a short time ago. [Read More](#)

Considerations for Predictive Modeling in Insurance Applications

Eileen Burns, Gene Dan, Anders Larson, Bob Meyer, Zohair Motiwalla, Guy Yollin, Milliman (SOA)

In a world where data and analytics are quickly making over many industries, the Predictive Analytics and Futurism and the Modeling sections of the Society of Actuaries (SOA), along with other SOA sections, are interested in educating actuaries on how best to implement predictive modeling into relevant areas of actuarial practice. The SOA engaged Milliman to study this topic and develop a research report that includes a review of existing literature and current industry practices, as well as a comprehensive set of considerations for predictive modeling in insurance applications. [Read More](#)

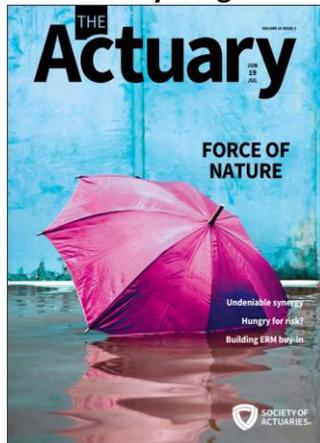
A Look Inside the Crystal Ball: Seven predictions about the future of insurance

Tim Rozar (The Actuary Magazine)

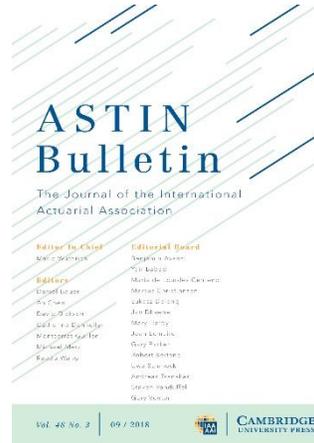
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