



Article of the month:

Participatory Risk Management

Youssef Nassef, Maryam Navi (The Actuary Magazine)

As the world grapples with its response to the COVID-19 pandemic, optimizing the allocation of limited resources is on the mind of policymakers. Moreover, the ensuing recovery effort will need to similarly determine how to plan for similar responses in the future. This includes the extent to which investment should be allocated to anticipatory or preemptive arrangements on the one hand, or to contingent arrangements that would be invoked only following the advent of a pandemic on the other. [Read More](#)

Financial Risk

Model Effectiveness and Model Risk Management During Times of Crisis

Jared Forman (DHG), Julian Horky (DHG)

Large financial services companies are leveraging their models developed for financial projection, customer behavior, risk calculation and other use cases to inform rapid decision-making during this time of unprecedented change. The current health and economic situations, as well as many of the input variables for these models, are changing at a staggering pace and at amplified volatility. Qualitative adjustments or management overlays are increasingly being applied to model outputs when the outcome is not useful or for models that cannot incorporate the unprecedented actions taken by individuals and governments across the globe (e.g., stay-at-home orders, Coronavirus Aid, Relief, and Economic Security (CARES) Act). A postmortem review of the usefulness and accuracy of models during uncertain times will certainly be required. [Read More](#)

On Economics: First Principles

Carlos Fuentes, Shiraz Jetha (Contingencies)

The authors believe that economics plays an essential role in politics, public policy, private opinion, and the actuarial profession. Considered a science by many, economics is remarkable in that it is frequently invoked to justify almost any opinions, including those that contradict each other. Its forecasting track record, poor as it is, does not seem to raise basic questions about assumptions or methodology, and neither does the lack of explanatory power of many of its theories. Timothy Geithner, president of the Federal Reserve Bank of New York (2003–2009) and secretary of the Treasury (2009–2013), writes: “One of my tasks was producing Treasury’s quarterly forecasts for the Japanese economy. This was a useful education, mostly in making me skeptical of forecasting.” [Read More](#)

Actuarial Models

Longevity trend risk over limited time horizons

Stephen J. Richards, Iain D. Currie, Torsten Kleinow, Gavin P. Ritchie (Annals of Actuarial Science)

We consider various aspects of longevity trend risk viewed through the prism of a finite time window. We show the broad equivalence of value-at-risk (VaR) capital requirements at a p-value of 99.5% to conditional tail expectations (CTEs) at 99%. We also show how deferred annuities have higher risk, which can require double the solvency capital of equivalently aged immediate annuities. However, results vary considerably with the choice of model and so longevity trend-risk capital can only be determined through consideration of multiple models to inform actuarial judgement. This model risk is even starker when trying to value longevity derivatives. We briefly discuss the importance of using smoothed models and describe two methods to considerably shorten VaR and CTE run times. [Read More](#)

Identifiability in age/period mortality models

Andrew Hunt, David Blake (Annals of Actuarial Science)

As the field of modelling mortality has grown in recent years, the number and importance of identifiability issues within mortality models has grown in parallel. This has led both to robustness problems and to difficulties in making projections of future mortality rates. In this paper, we present a comprehensive analysis of the identifiability issues in age/period mortality models in order to first understand them better and then to resolve them. To achieve this, we discuss how these identification issues arise, how to choose identification schemes which aid our demographic interpretation of the models and how to project the models so that our forecasts of the future do not depend upon the arbitrary choices used to identify the historical parameters estimated from historical data. [Read More](#)

Multivariate Hawkes process for cyber insurance

Yannick Bessy-Roland, Alexandre Boumezoued, Caroline Hillairet (Annals of Actuarial Science)

In this paper, we propose a multivariate Hawkes framework for modelling and predicting cyber attacks frequency. The inference is based on a public data set containing features of data breaches targeting the US industry. As a main output of this paper, we demonstrate the ability of Hawkes models to capture self-excitation and interactions of data breaches depending on their type and targets. In this setting, we detail prediction results providing the full joint distribution of future cyber attacks times of occurrence. In addition, we show that a non-instantaneous excitation in the multivariate Hawkes model, which is not the classical framework of the exponential kernel, better fits with our data. In an insurance framework, this study allows to determine quantiles for number of attacks, useful for an internal model, as well as the frequency component for a data breach guarantee. [Read More](#)

Investments

Compensated and Uncompensated Risks In Global Factor Investing

Sina Ehsani, Michael Hunstad, Manan Mehta (SSRN)

Global equity risk factors that are constructed by sorting stocks on firm characteristics associated with expected returns contain embedded region and sector exposures. We show that these positions lead to uncompensated volatility. Hedging out both region and sector exposures simultaneously increases the Sharpe ratio of the typical global factor by 50%. Hedged factors, individually or in a model, always subsume their non-hedged counterparts. Our results have implications for international asset pricing and portfolio management. [Read More](#)

Investors turn to raw data over ratings in ESG alpha hunt

Rob Mannix (Risk.net)

Product returns are not usually a factor in socially responsible investing. But with more conventional approaches that rely on environmental, social and governance (ESG) scores looking increasingly dated, some quant firms are combing novel datasets, such as textual information on product returns, for more granular investing signals. [Read More](#)

Credit: Investment grade credit markets in a pandemic?

Joseph Mariathasan (IPE)

The COVID-19 pandemic is a prime example of a 'preventable surprise' but one that should have been addressed by governments as well as corporates. Investors in all asset classes are facing uncertainties and risks that throw into question the survival of companies and industries that once seemed solid. For investment-grade debt investors, the world may have changed, but there is still hope and opportunities for the future. [Read More](#)

Trending topics

Actuaries and the Opioid Epidemic

Erin A. Ferries Guy (The Actuary Magazine)

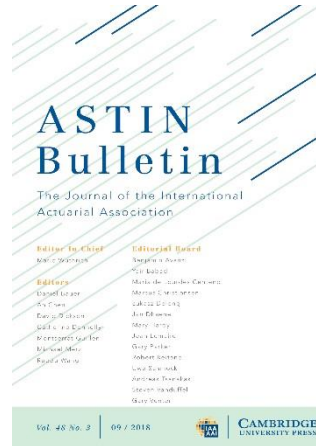
The United States is experiencing a public health epidemic unlike any we have seen before, with the utilization of a single drug class having a devastating impact on millions of Americans and causing catastrophic medical, societal and economic effects. The statistics associated with the opioid epidemic are staggering. Overdoses are the leading cause of accidental deaths in the United States, which means you are more likely to die from an opioid overdose than you are in a car crash.¹ In recent years it has been estimated that up to 130 Americans die of an opioid overdose every day, and in 2017 an additional 11.4 million people reported misusing opioids within the past year. [Read More](#)

Resources (click upon image to access)

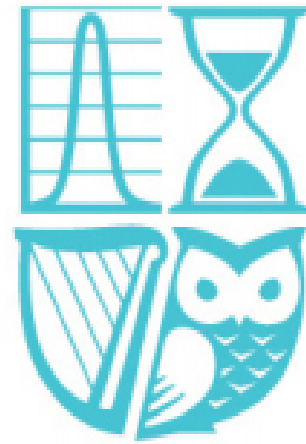
The Actuary Magazine:



ASTIN Bulletin:



Irish SoA Database:



AFIR-ERM Section

[Get involved](#) | [Learn](#) | [Stay in touch](#)