



Article of the month:

Analytic expressions for annuities based on Makeham–Beard mortality laws

David C. Bowie (Annals of Actuarial Science)

This note derives analytic expressions for annuities based on a class of parametric mortality “laws” (the so-called Makeham–Beard family) that includes a logistic form that models a decelerating increase in mortality rates at the higher ages. Such models have been shown to provide a better fit to pensioner and annuitant mortality data than those that include an exponential increase. The expressions derived for evaluating single life and joint life annuities for the Makeham–Beard family of mortality laws use the Gauss hypergeometric function and Appell function of the first kind, respectively. [Read More](#)

Actuarial Models

Healthy life expectancy in China: Modelling and implications for public and private insurance

Han Li, Katja Hanewald and Shang Wu (Annals of Actuarial Science)

Already home to 23% of the global elderly population, China will experience further demographic change in the coming decades. To address the consequences of population ageing, the Chinese government is implementing major social insurance reforms and promotes the development of private insurance markets. We aim to inform these initiatives by developing a new method to project healthy life expectancy (HLE) in different regions. HLE is an important population health measure which is increasingly used in the actuarial literature. Our new approach relies on publicly available data from the Global Burden of Disease Study for life expectancy and HLE for 139 countries. We use the model to estimate HLE at birth in 2015 for 31 province-level regions in China for both males and females. We discuss the implications of our results for planned increases in the retirement age in China and for long-term care insurance pricing. [Read More](#)

Financial Risk

Big banks worry small lenders could derail Libor switch

James Ryder (Risk.net)

Smaller banks are being forced to put their Libor transition preparations on hold amid a coronavirus-induced resource crunch, larger dealers are warning – throwing into jeopardy regulators’ plans to have the whole market migrate to new risk-free reference rates from the end of next year. While larger banks have dedicated transition teams, smaller firms are being forced to divert resources during ongoing market panics and a massive uptick in emergency lending. [Read More](#)

Banks race to adapt AML systems for the coronavirus age

Steve Marlin (Risk.net)

Patterns of fraudulent activity have changed markedly during the global coronavirus lockdown, but banks don’t expect much sympathy from regulators if their detection systems are found wanting as a result. “They do recognise that there are challenges, but I would struggle to think of

an argument that I could use to the Financial Conduct Authority (FCA) that I wasn't able to validate my new risk assessment model just because of Covid-19," says Richard Snookes, chief compliance officer at Sberbank. [Read More](#)

Investments

Multivariate Regime Switching GARCH Model Application to Portfolio and Risk Management

Zhi De Khoo (SSRN)

Regime switching dynamic correlation (RSDC) model allows the correlations to be constant with the regimes themselves however, it differs across regimes. RSDC model has retained many good properties from CCC multivariate GARCH and DCC multivariate GARCH. For example, RSDC does not suffer from the curse of dimensionality due to the two steps estimation for volatility. Positive semi-definite is also easy to achieve from its decomposition from covariances. In this research, the feasibility of the constant correlations assumptions have been tested using Lagrange Multiplier test developed by Tse (2000) on the RSDC model. [Read More](#)

Trending topics

Actuaries in the Time of Coronavirus

Robert Eaton (The Actuary Magazine)

Actuaries are reacting personally and professionally to the spread across the globe of the novel coronavirus and the respiratory disease COVID-19. I write this from my home office, and if you are reading this in April 2020, it's likely that you're doing so from your own home. Much of the global workforce is self-quarantining in an effort to socially distance one another to retard the fast spread of COVID-19. [Read More](#)

An Actuary's Duty

Charly J. Pazdor (The Actuary Magazine)

For many actuaries, acting with professionalism is as simple as behaving ethically. For others, it is following their credentialing organization's professional code of conduct. Most actuaries also consider the actuary's duty to the profession and the public. But professionalism is broader than these ideas. It also includes how our employers and clients perceive how actuaries provide these services to them—beyond the calculations of the present value of future contingent events. [Read More](#)

To model the real world, quants turn to synthetic data

Mauro Cesa and Luke Clacy (Risk.net)

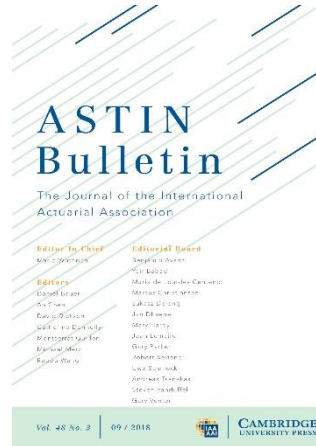
Black swans are like kryptonite to quants. When faced with extreme and unexpected events, their carefully constructed models seem to quickly lose their predictive power. The coronavirus pandemic is another example of this. With consumers locked down and businesses in limbo, markets saw some of the largest daily swings in nearly a century. Quant models struggled to cope. [Read More](#)

Resources (click upon image to access)

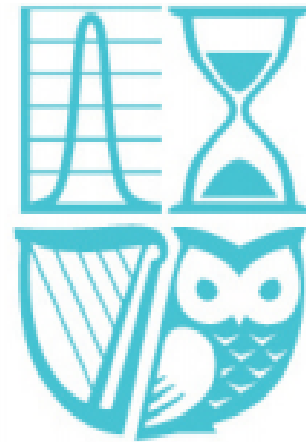
The Actuary Magazine:



ASTIN Bulletin:



Irish SoA Database:



AFIR-ERM Section

Get involved | Learn | Stay SAFE & CONNECTED