IAA AAI AFIR-ERM Finance, Investment & ERM

REFERENCE LIST
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Article of the month:

The Changing Face of Risk

Rowen Bell (theactuarymagazine.org)

In recent years, the pace of change in the U.S. health insurance industry has been frantic, making it difficult for health insurers and the actuaries who support them to focus on anything other than the novel problems and situations they are confronting currently. In this kind of environment, it can be difficult to make the time to step back and reflect on the longer-term trends affecting the health insurance industry. Read more

Actuarial Models

On the use of Archimedean copulas for insurance modelling

Thilini Dulanjali Kularatne, Jackie Li, David Pitt (Annals of Actuarial Science)

In this paper, we explore the use of an extensive list of Archimedean copulas in general and life insurance modelling. We consider not only the usual choices like the Clayton, Gumbel–Hougaard, and Frank copulas but also several others which have not drawn much attention in previous applications. First, we apply different copula functions to two general insurance data sets, co-modelling losses and allocated loss adjustment expenses, and also losses to building and contents. Second, we adopt these copulas for modelling the mortality trends of two neighbouring countries and calculate the market price of a mortality bond. Our results clearly show that the diversity of Archimedean copula structures gives much flexibility for modelling different kinds of data sets and that the copula and tail dependence assumption can have a significant impact on pricing and valuation. Moreover, we conduct a large simulation exercise to investigate further the caveats in copula selection. Finally, we examine a number of other estimation methods which have not been tested in previous insurance applications. Read More

Valuation of no-negative-equity guarantees with a lower reflecting barrier

R. Guy Thomas (Annals of Actuarial Science)

If the general level of house prices falls a long way, policymakers may introduce new policies which seek to support prices. This paper considers the effect of such interventions on the valuation of no-negative-equity guarantees (NNEG) in equity release mortgages. I model interventions by a reflecting barrier expressed as a fraction of the current level of house prices. Reflection at the barrier is instantaneous, so the no-arbitrage property is preserved, and hence risk-neutral valuation of NNEG is possible. The reflecting barrier can alternatively be justified as a representation of the different economic nature of the underlying housing (and particularly freehold land) assets in NNEG valuations, compared with the underlying equity assets in many other option valuations. Read More

Financial Risk

What is essential is invisible to the eye: prioritizing near misses to prevent future disasters

Andrea Giacchero and Jacopo Moretti (Risk.net)

A near miss is a negative and anomalous event that causes an accident without damage to people, corporates or environmental assets due to fortunate and/or random circumstances. A series of these events can be the precursor to a harmful incident with serious consequences because of inadequacies in internal processes. The management of a company should mitigate such inadequacies promptly to avoid future disasters. Near miss analysis is a milestone of the operational risk management framework in financial institutions. Therefore, near misses represent a primary information source to analyze the operational risk exposure of the company, since they can reveal gaps in the control environment. The model proposed in this paper aims at identifying the most dangerous events that could happen in a financial institution using near miss data collection. The output of the model is a near miss ranking, in decreasing order of significance in terms of possible damage, which supports the management in prioritizing mitigation actions, in line with the principles of parsimony and efficiency. Read more

Where Do Institutional Investors Seek Shelter when Disaster Strikes? Evidence from COVID-19

Simon Glossner, Pedro Matos, Stefano Ramelli and Alexander F. Wagner (SSRN)

Institutional investors played a crucial role in the COVID-19 market crash. U.S. stocks with higher institutional ownership -- in particular, those held more by active, short-term, and domestic institutions -- performed worse. An analysis of changes in holdings through the first quarter of 2020 reveals that mutual funds, investment advisors, and pension funds favored stocks with strong financials (low debt and high cash), whereas hedge funds sold stocks indiscriminately. None of these institutional investor groups appear to have actively tilted their portfolios toward firms with better environmental and social performance. Data from a large discount brokerage indicate that retail investors acted as liquidity providers. Overall, the results suggest that when a tail risk realizes, institutional investors express a preference for "hard" measures of firm resilience. Read more

Investments

Research: The rise of climate investing in passive funds

Amin Rajan, Asoka Woehrmann (IPE)

COVID-19 is a devastating reminder of the fragility of life on Earth. It will be a key defining force of change in our age, alongside global warming. Recent TV footage of empty roads, cleaner air quality, animals coming closer to cities and people working from home has starkly unmasked the toxicity of the unbalanced relationship between humans and nature.

But the deadly cloud of coronavirus has come with a silver lining. Resilience is the new watchword.

Unprecedented economic support from policymakers to protect lives and jobs has been timely. This has also turned the spotlight on the role of firms and their investors in tackling two side effects of turbo-charged capitalism – economic inequalities and environmental degradation. Read more

Ahead of the curve: Liquidity has been the litmus test for China's bond market

Hugh Briscoe (IPE)

It is no safe haven, but China has provided bond investors with important shelter through the storm. Government bonds, the markets' typical retreat when the going gets tough, fell alongside risk assets through the crisis, as investors around the world have sought safety and liquidity. The scale –and speed – of risk-off moves required investors to seek safety in unlikely areas, as liquidity in some of the most easily tradeable assets all but dried up.

Through the drought, Chinese government bonds proved to be among the most liquid assets – so much so, in fact, that they were easier to trade than European government or agency bonds. China's capital controls insulated its onshore bond market from the full force of the global dash for cash, and the market's smaller number of overseas investors limited the impact of mutual fund outflows and portfolio rebalancing, which contributed to challenging trading conditions elsewhere. Read more

Trending topics

How Deep are Financial Models?

Nikolai Nowaczyk, Joerg Kienitz, Sarp Kaya Acar and Qian Liang (SSRN)

Deep learning is a powerful tool, which is becoming increasingly popular in financial modeling. However, model validation requirements such as SR 11-7 pose a significant obstacle to the deployment of neural networks in a bank's production system. Their typically high number of (hyper-)parameters poses a particular challenge to model selection, benchmarking and documentation. We present a simple grid based method together with an open source implementation and show how this pragmatically satisfies model validation requirements. We illustrate the method by learning the option pricing formula in the Black-Scholes and the Heston model. Read more

Bribery and corruption: Sustainability's nemesis

Niki Natarajan (IPE)

SDG 16.5, covering bribery and corruption, is central to other SDGs but hard to tackle in practice

Key points

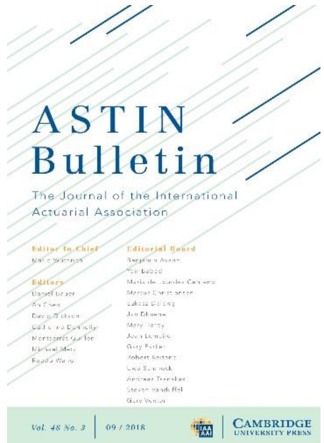
- $3.6trn is lost annually to corruption
- SDG 16.5 (bribery and corruption) is key to achieving the other SDGs
- Transparency and engagement is crucial
- Corruption is a global problem

The annual costs of corruption amount to $3.6trn (€3.3trn) in the form of bribes and stolen money, according to United Nations secretary-general António Guterres, speaking on International Anti-Corruption Day last year. Put into context, $3.6trn was more than 4% of global GDP at the time. Read more

Resources (click upon image to access)

The Actuary Magazine:

ASTIN Bulletin:



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