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Buy-Side Awards 2016

Numerix wins ALM technology provider of the year

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numerix

ALM technology provider of the year

Numerix

New York-based Numerix made its name as a developer of some of the most advanced asset-pricing and risk analytics for banks. Through its engagement with insurers that sought its help in managing variable annuities (VA) portfolios, such as Ohio National Financial Services and Transamerica, the firm has brought its modelling expertise to bear on complex liabilities as well.

The result is Oneview Insurance – an integrated platform for asset and liability management (ALM) and hedging that includes an economic scenario generator (ESG) for risk-neutral and real-world scenarios – and the Leading Hedge risk management and hedging tool for life and annuity products. Oneview Insurance enables firms to apply consistent valuation methods to liabilities and assets, including complex hedge assets, eliminating model risk between the two sides of the balance sheet.

"Until recently, there was very little stochastic modelling in the insurance industry," says Pawel Konieczny, vice-president of insurance solutions for Numerix's client solutions group. "While mortality and longevity risk were well understood, the addition of guarantees and riders added on top of base life product contracts introduced new types of risk that were less familiar. Today, it's clear these guarantees and riders behave like derivatives, and have to be understood and managed like derivatives. This requires a core set of real-world and risk-neutral models within a stochastic modelling framework."

A flexible approach

Insurers have expressed the desire to incorporate their own views of potential macroeconomic developments into their scenario simulations. Numerix has responded by giving users the flexibility to customise the calibration of its ESG for their ALM and capital modelling. "Some insurers have strong internal views they want to embed in their real-world scenarios – for example, having a set of stochastic rates hit target rates over a future time horizon. They may also have a volatility target around each point in time," says Konieczny.

Numerix has included a two-factor Cox-Ingersoll-Ross model in its ESG for interest rate modelling and allows all parameters to be time-varying. "This enables users to achieve a desired distribution of interest rates that covers the entire projection horizon. Users are able to observe the distribution of real-world interest rates at each point of time in the future using a single calibration," says Konieczny.

Regulation is driving the need for sophisticated ALM modelling wherever complex products are offered. Variable annuities are popular in South Korea, with many linked to the Korea Composite Stock Price Index, which has seen significant growth over the past few years, resulting in higher premium revenues. But, regulation of guarantee reserving has changed since 2011, necessitating the use of a stochastic calculation approach with real-world modelling dynamics.

An aspect of Numerix's offering that firms have found attractive is the flexibility of its technology architecture. In addition to the integrated Oneview Insurance platform, Numerix offers the ability to integrate the platform's components with an insurer's in-house systems if they wish.

"Insurers often have production systems for their regular ALM calculations, but which are not good for *ad hoc* analysis. So they tend to do this analysis in spreadsheets, which are prone to errors and are cumbersome to handle," says Konieczny. Numerix offers an alternative approach whereby companies can have the flexibility for *ad hoc* analysis, but with the reliability and performance of a production system through the use of modern scripting languages to access Numerix's analytics.

(l to r) Tim Carley, Stephen Leel and Kaushik Punjabi, Numerix

> "Partnering with Numerix was a better choice because it felt almost like an in-house development" Jeroen Decuypere, Aegon

Numerix has also been addressing the performance demands of modern ALM through the use of accelerated analytical techniques and high-performance computing, such as adjoint algorithmic differentiation (a technique for simultaneously calculating the sensitivities of a derivative along with its price) and graphics processing units (microprocessors designed for rapid parallel processing).

The performance and flexibility of technology and sophistication of models are usually key reasons clients cite for choosing Numerix's products for their ALM, alongside the company's willingness to help solve clients' problems.

"We have chosen Numerix because of the wide variety of modules available out of the box, as well as the flexible and intuitive modular setup of the software," says Jeroen Decuypere, a Baltimore-based financial engineer at Aegon. "We felt that partnering with Numerix was a better choice because it felt almost like an in-house development, while having the backing and stamp of a third-party company." ■

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