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XVA solution of the year



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Numerix

For financial institutions to stay competitive they must be able to calculate a vast array of complex pricing and risk data and get it into the hands of decision-makers when they need it, which is increasingly in real time. Today, this includes various valuation adjustments (XVA) for derivatives pricing, such as credit, debit, funding, regulatory capital and margin adjustments, as well as associated sensitivities.

Numerix has long been a leader in pricing analytics, especially at the more exotic end of the product spectrum. In recent years, it has been repositioning itself as a more broad risk and profit-and-loss analytics platform provider. The process is ongoing, but the company now has a comprehensive set of risk measures, as well as an enhanced data model – an essential element where information from multiple sources must be integrated for XVA.

At the same time, Numerix has made choices in terms of underlying technology that make it an attractive choice for firms wanting to introduce or improve their XVA capabilities. In 2018, the company re-engineered its Oneview platform to a microservices architecture that allows it to rapidly develop new features and functionality in a flexible and scalable manner, as well as more readily interface with other systems or data sources.

“By revamping our technology for microservices we are able to carve out parts of the XVA functionality so they can be understood and upgraded selectively by our clients,” says Satyam Kancharla, chief strategy officer at Numerix.

“Also, it is not only the XVA calculations that are important, but having the right workflow for the approval of prices. Institutions have different approval processes, so having a completely configurable workflow with a user interface that is easy to use is essential.”

Numerix has also created a managed service offering of its platform, with the quicker time to market and lower cost of ownership of this delivery mechanism targeted at wealth management and asset management clients. This all fits well in a world increasingly looking to meet technology needs through the cloud. As more firms use risk-adjusted pricing and set up central XVA desks, Numerix is capitalising on its new strengths.

“Managed services are a growing trend globally, and in Asia in particular there is widespread adoption. A lot of the regulatory hurdles, such as around the use of cloud, are being overcome and we are seeing a strong appetite for this kind of delivery of our XVA service,” says Kancharla.

In addition to the calculation of a comprehensive set of value adjustments and their real-time integration into pricing and valuations, the XVA capabilities of Oneview include calculation of XVA Greeks and cross-Greeks, pre- and post-trade XVA analysis, and incremental XVA calculations. Flexible scripting is available for clients to add to the company’s existing set of XVAs and/or to modify their methodologies.

Numerix leverages its tried and tested American Monte Carlo algorithms for XVA and potential future exposure calculations, with the option to offload simulations onto parallel processing GPUs for higher performance. XVA sensitivities are currently calculated using the company’s Risk Scenario Framework

(RSF), the scenario engine underlying all scenario analysis and stress-testing in Oneview.

Because of its flexibility, out-of-the-box scenarios in Oneview can be quickly and easily modified within the Oneview user interface, without any scripting knowledge required. For even greater control, the underlying RSF script can be modified to specify any possible market scenario desired. Adjoint algorithmic differentiation and backward differentiation will also be incorporated to further increase processing speed.

Data is another area where Numerix has increased its capabilities. “XVA brings many data challenges and we have stepped up our data services. We have broadened the footprint of our solution to include pre- and post-trade data processing. We can take in all of a client’s data, particularly credit data, where there will inevitably be gaps and quality issues, and deal with those,” says Kancharla.

Numerix’s roadmap for future developments includes many other specific XVA capabilities, particularly for MVA calculations for pricing initial margin into trade prices. The company recently launched a new Oneview module for the International Swaps and Derivatives Association’s standard initial margin model (Simm), featuring a Simm calculator and a job manager, market data normalisation, support for Isda’s common risk interchange format (Crif), and Simm what-if calculations. The company has also implemented the calculation of MVA for interest rate trades with the Hull White 1F Model based on Simm-MVA calculations for callable exotics that appeared in Risk, August 2018.

Planned functionality includes the ability to calculate MVA based on Simm or other initial margin methodologies and integrate MVA into pre-deal checks and other XVA analyses, as well as configurable and customisable workflows for sales, trading, XVA desks, risk and treasury.

While these detailed technical abilities are critical, they are complex to introduce, and many institutions are looking for guidance on where to begin and how to proceed.

“Firms now need to consider a number of valuation adjustments, but which are the most relevant and meaningful can differ with each institution,” says Kancharla. “It can depend on many factors, such as the type of institution, the region or market practice.

“Navigating the implementation of XVA in a phased and rational way and keeping the board and senior executives abreast of what is happening and why is a challenge. We are increasingly helping our clients in a consultative way with this.”

An Asia Risk judge says: “XVA is well integrated within the overall Numerix Oneview application. Numerix makes good use of different mixtures of quantitative methods and technologies, such as GPU parallel processing for different instruments.

“Many institutions nowadays are looking for sophisticated XVA capabilities that are open-systems oriented so that they can integrate them with their existing infrastructure rather than replacing it all, and Numerix has an edge in this regard.” ■



NUMERIX

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To learn more about Numerix Oneview visit www.numerix.com