



Talking XVA: Pace of adoption, new technology & cloud

When it comes to XVAs, there is no shortage of topics to discuss. The narrative is always evolving. One significant aspect of the XVA story is that we've seen more complexity each time a new valuation adjustment was created, particularly with the calculations associated with margin valuation adjustment (MVA).

With new valuation adjustments such as MVA and KVA (capital valuation adjustment) coming into play for more sophisticated users, and with the role of CVA/DVA and FVA still posing challenges to new entrants into the derivatives space, the complexities associated with accurately calculating and managing XVAs certainly haven't slowed.

To help provide answers and perspective to some of the key questions and issues dominating the market conversations today around XVAs, we met with Irina Slobodyanyuk, Lead Product Manager for XVA and Financial Engineer for Risk at Numerix. She discusses the increasing adoption of XVAs in the marketplace, technology trends in the space, initial margin rollout and MVA, and how XVA desks are looking at utilizing the cloud for XVA calculations.



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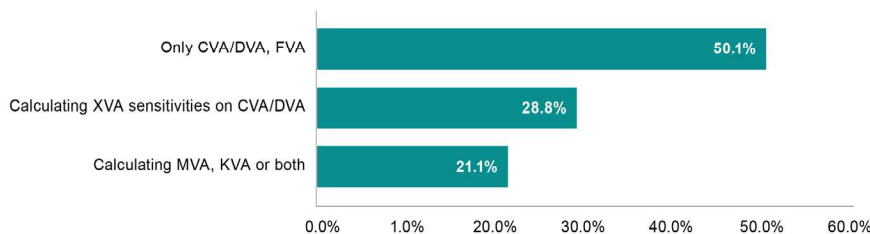
In terms of the global adoption of XVA measures, are different regions at different stages of utilizing XVAs?

Yes, there is diversity in the progress of XVA implementation across the globe. European banks are at the forefront of the initiative in the sense that they are far along in implementing all of the XVAs. Additionally, the Europeans have started to implement advanced methods of optimizing XVAs—before all other players. The U.S. and Canadian banks have implemented basic measures, such as CVA, DVA and FVA. They are now focusing on implementing more complex measures, such as MVA and KVA. The Asia region is at the beginning of this journey, just starting to implement XVAs now.

The challenge all market participants face is finding the true value of their derivatives trades. It is difficult to do. The market leaders are trying to optimize their valuation solutions through AD (algorithmic differentiation) Greeks and other advanced methods. I believe that as more players come into the XVA space, the more prevalent the XVA optimization conversation will become.

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How advanced is your firm in its use of XVAs?



Source: Numerix-sponsored Risk.net webinar: “Evolving XVAs: How to Manage Changing Regulation and Competitive Pricing.” September 25, 2019

You mentioned AD, which came onto the scene a few years ago and made a big splash. Do you think all market participants are going to start adopting this technique for quickly computing accurate sensitivities? Will it become the norm?

The goal is to get as close to real time as possible, so I do believe using AD will become more widespread as a way for firms to optimize their books. The institutions that are first movers in implementing AD are blazing the trails for the second movers, who can follow the path laid by the first movers. And for those institutions that don't have the bandwidth or expertise to implement AD technology, there are a number of advanced solutions available in the market that are plug and play—that an institution can just purchase and start using.

Numerix, for example, has been a leader in developing new approaches to AD over the last several years. Since lengthy computation times can have opportunity costs and enhance risk exposure for banks, this has led to a mandate for greater speed and performance. It's through numerical optimizations such as AD that users can see substantial performance improvements.

Phases 1-4 for the implementation of initial margin rules for non-cleared derivative transactions are complete. Phases 5 (September 2020) and 6 (September 2021) are still ahead and will impact a significant number of firms, more than 1000. Do you think this will get the market to start thinking more deeply about the optimization of MVA calculations in the pricing of derivatives?

To begin with, existing XVA measures, such as CVA, are already a fairly complex calculation. To compute CVA, it requires the projection of PVs into the future. Now market participants will need to project sensitivities into the future for MVA, which increases the complexity immensely. Even if we are looking at time zero, calculating sensitivities is much more complicated than projecting the PVs. The market is seeking to determine the sensitivity on each node of the Monte Carlo simulations grid by timesteps. To run this calculation, the market is looking towards implementing AD alongside MVA to help determine the distribution profile of the SIMM sensitivities.

Once this is implemented, there are some system optimizations that can be put in place to improve the performance further through parallelization. The initial sensitivity calculations can be run in parallel at the trade level and aggregated up to the portfolio level. The Jacobians from the model parameter sensitivity can be determined at the portfolio level, so there's no need to recalculate them for each trade. Then the Jacobians can be applied at this portfolio level to determine the SIMM sensitivities at the portfolio level. Now imagine recomputing this as part of a pre-deal check calculation in order to determine which counterparty would be cheapest to trade against. These calculation optimizations are instrumental in terms of receiving the information needed to quickly make that decision.

DEFINING SIMM

"SIMM" refers to ISDA SIMM™, a common methodology developed by ISDA to help market participants calculate initial margin on non-cleared derivatives. Using a single, standardized model for initial margin calculations could help bring a range of benefits to OTC derivatives market participants, such as enabling greater operational simplicity, permitting a timelier and more transparent dispute resolution between counterparties, and allowing consistent regulatory governance and oversight.

"It's through numerical optimizations such as AD that firms can see substantial performance improvements in optimizing their valuation solutions."

Is there a trend towards conducting XVA calculations on the cloud? What would be the benefits in doing so?

While many XVA desks are faced with internal security requirements that force them to keep their hardware on premise, I would say there is still definitely a trend towards moving XVA calculations onto the cloud. The cloud delivers a lot of convenience. For example, the cloud allows the convenience of only paying for the hardware needed for the compute at the time of the calculation. An institution can scale up or down the compute power it needs to run calculations within an allotted amount of time.

For instance, more compute power could be allotted when there is a need to run a faster intraday calculation versus an overnight batch run. There is another benefit, which is not having to compete for shared internal resources. For those institutions that share an on-premise resource for running calculations, meaning a resource that is not dedicated exclusively to the XVA desk, that could be limiting when different desks are competing to use that resource. The XVA desk may not be able to run all the calculations it needs to when it needs to. That would not be an issue with the cloud.

Speaking of the cloud, do you see the usage of managed services gaining speed in the capital markets?

Yes. One more trend we are seeing among market participants is that they are seeking to reduce their overall operational burdens by taking advantage of managed services. I am referring to managed services in the context of managed applications and business functions deployed on a cloud computing infrastructure.

More specifically, it is about a technology vendor operating its software on behalf of the customer, therefore the vendor provides full operational support of its software and often takes direct responsibility for some of the business workflows and operations that are outsourced to it. Some of the services derivatives business tend to look for in a managed services solution include the computation of risk sensitivities/Greeks, conducting scenario analysis, and performing pre-trade pricing with XVA-integrated prices, and other services.

For more information and insights regarding the evolution of XVAs and the market's usage of them, request our new on-demand webinar: [Evolving XVAs: How to Manage Changing Regulation and Competitive Pricing](#).

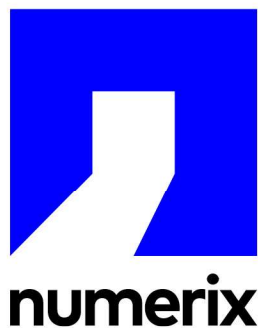
**CONSIDERING A MANAGED SERVICES SOLUTION?**

A managed services program can provide answers to many business challenges. To learn more about the benefits and capabilities the right managed services vendor can deliver, including for the pricing and management of XVAs, download our whitepaper: [The Value of Managed Services for Trading and Risk Management](#).

Ready to elevate your business?

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More than 550 clients and 90 partners across 52 countries rely on Numerix analytics. Headquartered in the financial capital of the world, with offices around the globe, Numerix brings together unparalleled expertise combined with local market understanding.



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