



ACTIVEVIAM

Analyzing data. Empowering the future.

Real-time Credit Valuation Adjustment

WHITE PAPER



The new methodology for Credit Value Adjustment (CVA) capital charge has created two technological challenges as it calls for thousands of market scenario simulations over tens to hundreds future time points. First, such requirements at trade level require highly complex mathematical models and powerful computation capabilities such as grid computing. Second, the large volume of data per trade needs to be aggregated and updated continuously for CVA analysis to be up to date across the entire portfolio.

Furthermore, scrutinizing the CVA has moved it from being a policy control tool to a trading enabler. Whereas historically CVA was used to set trading limits per counterparty, it is now used for growth. It helps enter a continuous business cycle where the appropriate price is given to a deal counterparty, then adequate hedging is done, allowing you to continue trading with that specific counterparty.

But as we have seen with our clients around the world, monitoring, understanding and hedging CVA requires high performance systems delivering the right information to the right person at the right time. However, banks usually run periodic night-time batches to create the required pricing and CVA data. The up-to-date values are approximated manually when needed by using sensitivities calculated in the past. But, the optimal front office usage of CVA calls for real-time capabilities to incorporate intraday activity and realtime market data. These are among the benefits of ActivePivot, a cutting-edge technology developed by ActiveViam and already used by some of the leading banks.

How ActivePivot Enables CVA Analysis and Hedging

Building on ActiveViam's success in market risk and real-time P&L management for leading global banks, ActivePivot has been optimised to provide unrivalled help for CVA desks.

ActivePivot enables users to fully leverage the bank's own algorithms and calculations for estimating counterparty risk for each trade. Our sophisticated compression algorithms store the massive set of trajectory simulations for each trade in ActivePivot's in-memory OLAP cube. What's more, our rapid-fire analysis performance is not affected by the complexity of the inputs.

The key benefits of ActivePivot for CVA include:

► ActivePivot offers unique analysis support: it aggregates complex data sets in real-time, while applying netting rules as per agreements providing split-second calculations for CVA, marginal CVA and CVA sensitivities. This delivers a convenient way of analysing and understanding CVA at any level: desk, currency, counterparty, geography, etc. ActivePivot enables

rapid-fire slice & dice and drill-through leading users to the set of trades and even the simulations that are driving the CVA.

► Going one step further, ActivePivot enables users to drill down to individual trades behind a netting node, for example, and look at when (which time point) and where (which scenario) a high CVA for instance comes from. This is a unique way of combining a high-level portfolio analysis of CVA with insight on the individual trade responsible for a CVA issue.

► ActivePivot makes CVA truly operational helping CVA desks to hedge it. Our powerful calculation engines instantly execute complex algorithms such as sensitivities to CDS and CDS' own sensitivity to market data. Such real-time indicators provide a complete picture of a specific counterparty's credit risk evolution but also help identify counterparties whose CVA or CDS are most sensitive to market data changes.

▶ ActivePivot users can lead instant 'what if' analysis with no impact on other users' analysis. One can indeed simulate one or a portfolio of new trades and immediately see CVA impact with the full slice & dice functionalities. Another type of 'what if' analysis is to simulate change in one or a set of counterparties credit quality: CDS Spreads or ratings.

In addition, users can benefit from ActivePivot's core capabilities:

▶ Our server-based architecture enables sharing appropriate data with all users: risk managers, traders or quantitative analysts. In addition, ActivePivot's output can be seen natively through MS Excel®, a web browser with our ActiveUI solution or any other means connecting to ActivePivot through web-services.

▶ We can integrate in real-time. Our solution does not require batch uploads and pre-calculations so as soon as new information is available (risk calculation or market data changes), ActivePivot instantly updates the outputs. This makes it extremely convenient for everyone to use the latest information, including for pricing purposes.

ActivePivot takes CVA a step further than its already complex calculation consuming analysis and helps think and act upon credit risk hedging, pricing and management. ActivePivot's unique features enable risk managers, traders and quantitative analysts to use CVA in day-to-day business. In doing so, it creates value for the bank, rather than simply using CVA as a control metric.




Key Benefits

- ▶ Gain a detailed understanding of where your counterparty risk exactly resides
- ▶ Hedge precisely CVA with up to date sensitivities
- ▶ 'What if' analysis for both pre-deal check and counterparty credit quality change

Key Features:

- ▶ Instant aggregation of all exposure simulations for all trades across all desks
- ▶ Instant integration of new trades to provide actionable front office data
- ▶ Slice & dice analysis across all available dimensions
- ▶ Real-time sensitivities for CVA
- ▶ Adapts to your own collateral model & netting rules
- ▶ Transactional capability: analysis and output are continuously updated as new information or trade based risk information is available



**Need more
details or want
to ask us a question?**

Contact us on [activeviam.com](https://www.activeviam.com)

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About ActiveViam

ActiveViam provide precision data analytics tools to help organisations make better decisions faster.

ActiveViam started in 2005 with the vision of leveraging in-memory technology to create an analytics platform where businesses could leverage the largest data sets without restrictions, keep them up-to-date in real time and use them to empower their decision makers.

Our goal at ActiveViam, is to let organisations not only make decisions faster, but better; to not only reach their data, but their potential; to not only see their data, but find their way into the future.

ActiveViam is a privately owned company with offices in Paris, London, New York, Hong Kong and Singapore.

For more information please visit:
www.activeviam.com