Precision at Scale: The New World of Counterparty Credit Risk Management

Mustering compliance requirements to maximize business performance

Comprehensive, accurate, consistent, actionable, relevant and timely analytics for CCR

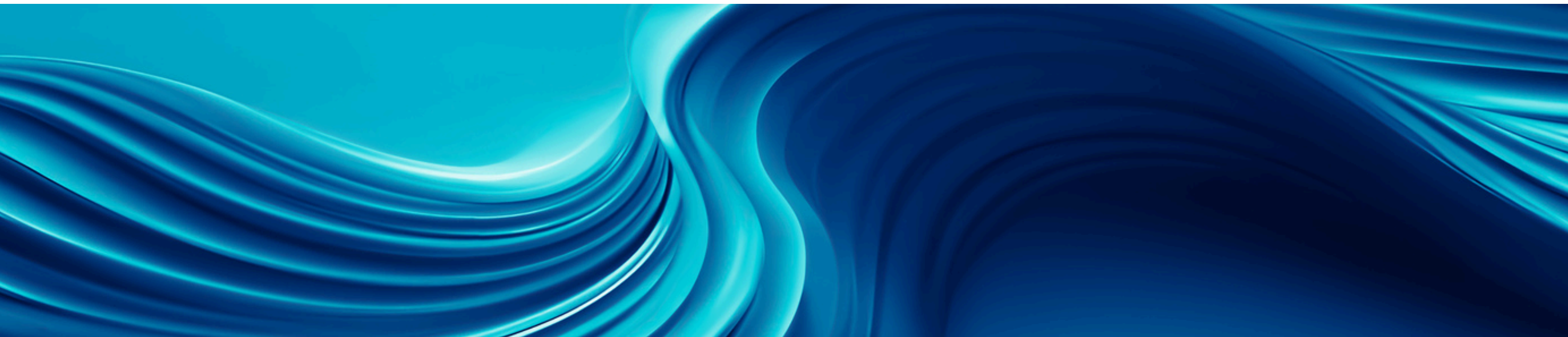
ActiveViam and d-fine have been successfully collaborating for over ten years delivering business value and regulatory compliance to banks and other financial institutions by providing solutions for Counterparty Credit Risk Management. In this paper we look at:

- new challenges imposed on those firms by the recent changes in regulation
- opportunities for novel solutions based on innovative technology
- impact on systems and processes
- how ActiveViam and d-fine can help

Counterparty credit risk (CCR) is the risk of losses due to default (or rating downgrade) of counterparties or issuers of financial instruments. It is a complex risk to quantify because it both depends on changes to the credit worthiness of an entity and on movements in the underlying market risk factors, making CCR a hybrid of market and credit risk.

The quantification and deep understanding of CCR is essential both for economic and regulatory purposes. It relies not only on solid methodologies and data sources, but also on organizational and procedural structures that match the complexity of the portfolio and the business model, and hence the risk structure of the institution. Technically, CCR quantification uses a lot of data and complex calculations (exposure simulations, stress tests, wrong way risk analyses etc.). The results have to be reported at many different aggregation levels (for example, counterparty, country, legal entity and so on). Despite this complexity, CCR quantification must be set up in a way so that management can understand the essence of the risks while not being overwhelmed with data.

If CCR is not measured using risk sensitive metrics and managed based on efficient business processes, there is a high risk of large losses, as seen in recent events in the market, most notably after the collapse of Archegos Capital Management. Incorrect assessment of CCR might also result in the firm's capital provisions not being set correctly. Consequently, regulators in the EU and worldwide have focussed on the adequacy of CCR management and have released corresponding guidelines.



"Reporting" has a new meaning - firms need a new approach

The Basel Committee on Banking Supervision (BCBS) has issued guidelines for counterparty credit risk management in December 2024[1] with the aim to address critical long-standing industry weaknesses in CCR management, namely insufficient CCR management within the full range of topics:

- Due diligence and monitoring
- Credit risk mitigation
- Exposure measurement
- Governance
- Infrastructure, data and risk systems
- Close-out practices

Efficient management reporting capabilities are essential to account for all of these topics to ensure a deep understanding of the firm's risk structure.

The consultation stresses the accountability of the management and key risk committees:[2]

> *Management reporting should empower managers to aggregate the data at an adequate level across key risk dimensions and over time periods. It should also enable managers to easily analyze data and conduct drilldowns on a timely basis.*

Firms are required to implement a central **Management Information System (MIS)**[3], where all key CCR exposure metrics can be monitored and analyzed in detail, including measures used at both a single name as well as portfolio level of aggregation, their evolution over time, top exposures, relevant limits, breaches and other flagged risks, and the degree of likelihood of potential losses.

The MIS should be set up in a way to yield a continuous view on the relevant risks and enable risk and senior management to perform in-depth analyses within a short time frame without external support. Reporting needs to be **comprehensive, accurate, consistent, actionable, relevant** and **timely**.

To allow the firm to tackle this challenge, it needs to perform an in-depth assessment of the underlying methodologies, processes, and governance to lay the groundwork for a successful technical implementation.

This includes the following questions:

- Do the metrics used for CCR management provide a comprehensive view on the actual risk profile and are they consistently used throughout the bank and portfolio?
- Are general and specific Wrong Way Risk (WWR) reflected by the methodology?
- Are concentrations in the portfolio or illiquid positions reflected (including collaterals)?
- Are stress testing scenarios employed to assess adverse scenarios with regards to counterparty credit risk? Are the stress testing scenarios defined matching the complexity of the business model and portfolio of the firm?
- Do the different organizational units in the firm work together efficiently and share their knowledge? E.g., Is information about counterparties, state of distress, adequately shared and reflected?

This should make it very clear that a fragmented and slowly adaptable set of static reports with limited insights into the actual risk structure is no longer acceptable. It needs to be replaced by an integrated solution with the right data and a performance-oriented modern technical solution.

[1] "Guidelines for counterparty credit risk Management", Basel Committee on Banking Supervision, December 2024, https://www.bis.org/bcbs/publ/d588.pdf
[2] See point 86 in the Basel guidelines.
[3] See point 90 in the Basel guidelines.

Overview

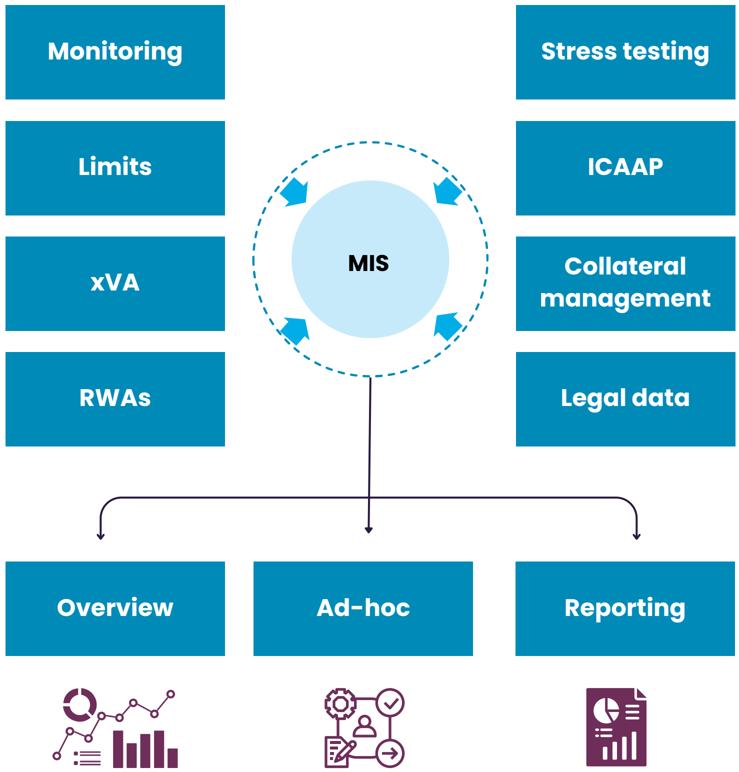
- Exposures and other metrics
- Different aggregation levels and look-through
- Positions and collateral
- Watchlist
- Counterparty data
- Concentration and liquidity

Ad-hoc analyses

- Drill-downs
- Explains "Time series and trends"
- History
- Stress testing
- WWR Analyses
- What-Ifs and scenarios

Reporting

- Management reports
- Top and watchlist - Counterparties
- Limits utilizations, limit overdrafts
- Special counterparty reporting
- ICAAP input



Split-second processing: a fundamental requirement

If the new guidelines had to be summarized in three words, those would be **transparency, precision** and **timeliness**. A compliant CCR analysis platform must be able to provide all three, which translates into the following concrete analytics requirements.

- Access to position/trade-level information. Pre-aggregated figures at counterparty level are simply not enough anymore, which means that the platform must be able to perform aggregation at different levels on-the-fly.
- A holistic view of risk, meaning the ability to slice-and-dice risk across the hundreds of relevant dimensions, which is a complex aggregation challenge.
- Intraday analysis and limits monitoring which implies the ability to update the dataset several times during the day to keep track of key risk figures continuously.

It is not all a matter of raw performance however. High computing capability for complex aggregation calculations is only a starting point. The new regulation also requires a paradigm change in how end users approach risk management. Risk managers can no longer afford to work in silos and only analyze risk across predetermined paths: they have to become more agile in their analyses and to collaborate across teams.

Additionally, a new approach to limits management is necessary. It is no longer sufficient to monitor limits on individual counterparties: firms need to have early warning indicators to identify negative trends of exposure at country, industry and sector level, among others. It is necessary to measure and monitor various metrics such as exposures based on PFE, xVAs, data regarding collateral and margins, and others, some of them yet to emerge.

Ultimately risk managers will need proper tools to enable them to do that: setting up ad-hoc analysis and dashboards, sharing views, and collaborating on problem solving. Systems that bring outliers to the foreground are no longer luxuries, but core requirements.

Not another upgrade: leveraging Atoti for CCR management transformation

Atoti offers the combination of a best-in-class aggregation engine with an in-memory database able to integrate data on-the-fly along the day from multiple sources, both continuously and through batch updates. This serves as the technological foundation to build a Management Information System for CCR and all ancillary metrics that will meet the challenges of today, with other key features ensuring success and performance in the long term.

- Design for multi-dimensional analysis
- DirectQuery access to historical data stored on cloud databases
- Powerful What-if engine for simulating complex stress scenarios
- Native limits management and monitoring
- Integrated, fully customizable and auditable sign-off process

Crucially, Atoti also ensures a complete transparency of all adjustments and intermediary calculations applied to the data. Many firms today have their risk managers rely heavily on personal, custom spreadsheets that apply transformations to the data rather than just display it, as a consequence of the limitations of their existing information systems. This situation, commonly known as "shadow IT", is no longer tenable under the increased regulatory scrutiny brought on by the new guidelines and their insistence on ensuring proper data lineage.

Atoti by contrast offers a centralized and transparent platform to drill-down to the root cause of phenomena and identify the drivers of change, such as a new deal increasing massively a counterparty exposure. It presents a MIS where client customizations remain possible, but are tightly controlled and maintained by the IT department in close coordination with the business. In further support of the new guidelines, Atoti enables very granular definitions of roles and access rights, ensuring risk managers that have access to all the data they need and no more.

Atoti is designed to analyze, understand and bring every figure into its proper context. It exists to support the decisions analysts make every day as well as the prospective, strategic choices business leaders make to steer the business forward. Atoti is the platform of choice for a world where there is no such thing as "just" reporting anymore.

With its powerful simulation capabilities to test and identify scenarios for capital optimization, stress tests and trading strategies, it is the stepping stone for a platform looking to the future rather than the past. A vision where the meanings, threats and opportunities behind every outlier are scrutinized exhaustively, not just to monitor risks at their current level, but to steer the business forward.

Planning two steps ahead

As the regulatory and competitive landscape changes, new technologies allow firms to stay ahead while keeping their costs under control.

Many companies have migrated some of their operations to cloud platforms to gain flexibility and economies of scale. However, they often find that deploying on the cloud is more complicated than anticipated. They benefit from working with experienced vendors and consultants if they lack internal expertise.

Atoti is a "cloud-first" platform, with a distributed architecture that takes advantage of the cloud's elasticity. With technology partnerships in place with all major cloud providers, dozens of successful deployments around the world, and a 2025 Risk Technology Award[4] for "Best Use of the Cloud", Atoti delivers high-performance, cost-effective and user-friendly solutions in the cloud.

Excellence doesn't grow out of thin air. With support from d-fine and ActiveViam, firms get all the benefits and synergies from a consulting firm with 20+ year of experience in CCR covering technological, methodological, and regulatory aspects and an industry-leading analytics platform to build up their capabilities and accomplish their goals. With their shared dedication to client enablement, firms not only achieve compliance and performance faster, but also build up their own expertise in the process and take control of their future.

[4] https://www.risk.net/awards/7960491/driving-innovation-in-risk-management-and-technology

About d-fine

d-fine is a European consulting firm focused on analytical and quantitative challenges and the development of sustainable technological solutions. The combination of over 1,500 employees with a strong scientific background and many years of practical experience enables us to provide tailor-made, efficient and reliable solutions for more than two hundred clients from every sector of the economy.

www.d-fine.com

About ActiveViam

Founded by industry experts, ActiveViam understands the data analytics challenges faced by financial institutions across trading desks, risk, and compliance. ActiveViam pioneered the use of high-performance analytics in finance, helping the largest investment banks, asset managers and hedge funds make better decisions, explain results with confidence, and simulate the impact of their decisions. ActiveViam's mission is to deliver train-of-thought analysis on terabytes of data in the most cost-effective way so clients can explain their results with confidence and model the scenarios that will optimize their business. ActiveViam specializes in risk data analytics for one of the fastest moving and most regulated industries with a presence in the world's leading financial marketplaces - London, New York, Singapore, Sydney, Hong Kong, Paris and Frankfurt.

www.activeviam.com

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