Quaternion™ approach to Dynamic Initial Margin

As a measure to reduce credit risk in the derivatives markets, regulators have made **central clearing** mandatory for eligible derivatives such as interest rate swaps. One of the features of centrally cleared trades is the **Initial Margin (IM)** that has to be posted so as to reduce losses that occur after a potential default. However, there are still many derivatives products that are not centrally cleared; these OTC transactions trade bilaterally. Global regulators have made IM mandatory in a phased approach from September 2016 for portfolios with the banks with the largest exposures.

IM significantly changes the XVA capital landscape of banks. On the one hand, it reduces credit and capital value adjustments because of the reduced credit risk. On the other hand, it boosts funding costs because the IM cannot be reused as collateral elsewhere, giving rise to a new **Margin Value Adjustment (MVA)**. Furthermore, Basel's Required Stable Funding forces banks to fund IM for a year or more in advance, leading to higher funding costs. To compute MVA appropriately, a bank has to be able to estimate the expected future IM over the lifetime of a portfolio – the **Dynamic Initial Margin (DIM)** – a task that is both methodologically and technically challenging.

With Quaternion's solution, clients can:

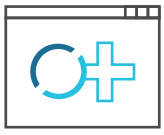
- Calculate Credit Valuation Adjustment (CVA) and Capital Valuation Adjustment (KVA) reductions as well as MVA in a fast simulation that does not take more time than a standard CVA calculation by Monte Carlo simulation, thus saving time and IT costs
- Optimize their MVA by comparing 'what-if' scenarios in order to reduce capital costs
- Verify their own calculations in order to satisfy independent model validation requirements
- Benefit from Open Source Risk's open and transparent calculations to achieve regulatory sign off

CLIENT MODEL

A client's internal model has been developed by the risk or technical units based on the existing frameworks of the organisation itself

ORE

Open Source Risk provides an Open Source engine under an open BSD license providing a fully transparent, cutting edge platform for the Quaternion product suite



ORE+

Quaternion has developed a series of libraries integrating with Open Source Risk to deliver superior results in terms of speed and breadth

CONSULT

Quaternion has consulting services that ensure implementation, integration and interrogation of the ORE+ product suite for clients

Features

- Comprehensive approach to DIM
- 'What ifs' allowing for testing
- Supported by independent model
- Built on open source

Benefits

- Transparency of the core model
- Independent model validation
- Regulatory compliance
- Support by Quaternion experts

Quaternion™ Risk Management

quaternion.com