



The impact of initial margin on xVA and regulatory capital

The phase-in of initial margin (IM) is progressing since Sep. 2016 and currently affects the largest market participants with portfolios over 350Bn€ AANA¹ of derivatives already affected by variation margin. From the 1st Sep. of 2021 and 2022, portfolios of 50Bn€ and 8Bn€ AANA will be affected as well. This leads to changes and challenges not only with collateral exchange processes, but also in determining the effect of IM on the balance sheet and on regulatory capital requirements; both of which cannot be left unaccounted for.

What is initial margin? Collateral that is used to lower the future exposure to a counterparty. Relevant trades are OTC derivatives already affected by variation margin requirements. IM can be calculated either via a notional based standard approach or an internal model, which has to cover at minimum a one-tailed 99% confidence interval and a 10 day margin period of risk. The market standard for the latter is the ISDA's "Standard Initial Margin Model" (SIMM).

¹Aggregate Average Notional Amount: The notional sum of the relevant OTC derivatives of the respective counterparty group.

d-fine

analytical. quantitative. tech.

The integration of initial margin in credit exposure simulations reduces counterparty exposures and therefore yields benefits in limit utilization, CVA, CVA risk charge and KVA (capital costs for SA-CCR and CVA risk).

The simulation of future IM is also a necessary prerequisite to the calculation of costs associated with posting IM, such as MVA.

MVA – Margin Value Adjustment

MVA measures the expected lifetime costs for posting IM and can potentially be charged to the trade counterparty. It is typically determined by including SIMM sensitivities in the exposure simulation or by a regression method. Schedule based IM can easily be included in any xVA calculation.

CVA – Credit Value Adjustment

While IM introduces new costs in form of MVA, it can also reduce CVA (and DVA) significantly. However, due to IM threshold, cash flow spikes, and exemptions, the CVA of an IM collateralized counterparty is not negligible and cannot be estimated without modelling IM in the credit exposure simulation.

Counterparty Credit Exposures

IM should be taken into account in the calculation of counterparty exposures, as it may reduce them significantly, impacting all derived figures. For the calculating of limit utilizations, a careful modelling and treatment of cash flow spikes may become necessary.

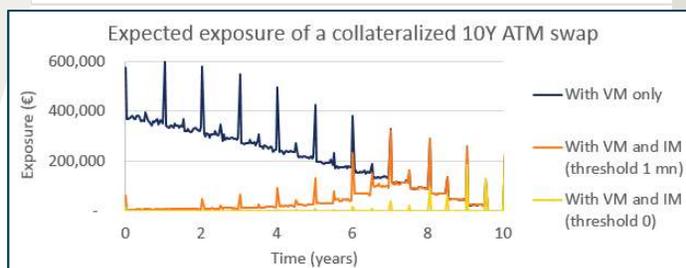


Figure 1: Expected exposure of a VM collateralized 10y ATM swap with and without IM, assuming an MPoR of 10bd

	BA-CVA	SA-CVA
no CSA	366%	372%
CSA	156%	34%
CSA + IM	44%	9%

Figure 2: New CVA risk charge of a 10y ATM swap with a financial counterparty, relative to current standardized method.

SA-CCR and KVA

The new standardized approach for counterparty credit risk much more favorably credits received collateral (VM and IM) than the CEM, reducing required capital for IM counterparties. If lifetime capital costs (KVA) are to be considered, future IM needs to be simulated (or estimated) as well.

CVA-Risk Charge

From 2023 onwards, financial institutions must follow one of the two new CVA risk approaches, BA-CVA or SA-CVA. If IM is taken into account in CVA, it can yield a significant benefit for SA-CVA. An example is given in figure 2, which is explained in detail in the d-fine whitepaper "Impact of the new CVA risk capital charge".

What does d-fine offer?

We have extensive experience with projects on initial margin, exposure simulation, xVA and regulatory capital. From pilot studies on the impact of IM, over prototyping and selecting vendors of exposure and IM simulation systems, to actually implementing and customizing such systems, as well as integrating IM simulations into existing xVA systems.



Contact us for a discussion about the impact of IM on your business

Dr Ruth Joachimi

Manager

Tel +49 69 90737-3273

Mobile +49 162 2631407

E-Mail Ruth.Joachimi@d-fine.de

Philipp Hoffmann

Consultant

Tel +49 89 7908617-1610

Mobile +49 152 57975408

E-Mail Philipp.Hoffmann@d-fine.de

Dr Holger Plank

Partner

Tel +49 69 90737-216

Mobile +49 162 2630051

E-Mail holger.plank@d-fine.ch