
Toward a benchmark GPU platform to simulate XVA

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Abstract

After the 2007 economic crisis, the calculation of the CVA (Credit Valuation Adjustment) and its extensions XVA ($X = C/D/F/T$) have become essential. This presentation is devoted to the fast and accurate computation of the XVA using a Nested Monte Carlo (NMC) simulation on GPUs (Graphic Processing Units). The considered model involves lognormal Market factors and uses Dynamic Marshall-Olkin for the Credit ones. The framework however remains quite general and is based on stochastic default intensities using CIR and allows for common-shocks. The complexity of the problem is not only due to the curse of dimensionality, but also to the large number of paths required by NMC. To make the execution time of simulations sufficiently small, a considerable effort was made in order to implement and optimize our code that runs on multiple GPUs.

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