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Collateralized CVA Valuation with Rating Triggers and Credit Migrations

Tomasz R. Bielecki, Igor Cialenco, Ismail Iyigunler

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In this paper we discuss the issue of computation of the bilateral credit valuation adjustment (CVA) under rating triggers, and in presence of ratings-linked margin agreements. Specifically, we consider collateralized OTC contracts, that are subject to rating triggers, between two parties -- an investor and a counterparty. Moreover, we model the margin process as a functional of the credit ratings of the counterparty and the investor. We employ a Markovian approach for modeling of the rating transitions of the two parties to the contract. In this framework, we derive the representation for bilateral CVA. We also introduce a new component in the decomposition of the counterparty risky price: namely the rating valuation adjustment (RVA) that accounts for the rating triggers. We give two examples of dynamic collateralization schemes where the margin thresholds are linked to the credit ratings of the parties. We account for the rehypothecation risk in the presence of independent amounts. Our results are illustrated via computation of various counterparty risk adjustments for a CDS contract and for an IRS contract.

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