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Cash Flow Optimization on Synthetic CDOs

Authors : Timothée Bligny, Clément Codron, Antoine Estruch, Nicolas Girodet, Clément Ginet

Abstract : Collateralized Debt Obligations are not as widely used nowadays as they were before 2007 Subprime crisis. Nonetheless there remains an enthralling challenge to optimize cash flows associated with synthetic CDOs. A Gaussian-based model is used here in which default correlation and unconditional probabilities of default are highlighted. Then numerous simulations are performed based on this model for different scenarios in order to evaluate the associated cash flows given a specific number of defaults at different periods of time. Cash flows are not solely calculated on a single bought or sold tranche but rather on a combination of bought and sold tranches. With some assumptions, the simplex algorithm gives a way to find the maximum cash flow according to correlation of defaults and maturities. The used Gaussian model is not realistic in crisis situations. Besides present system does not handle buying or selling a portion of a tranche but only the whole tranche. However the work provides the investor with relevant elements on how to know what and when to buy and sell.

Keywords : synthetic collateralized debt obligation (CDO), credit default swap (CDS), cash flow optimization, probability of default, default correlation, strategies, simulation, simplex
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