

Simulating Correlated Defaults

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Abstract

This paper describes several computationally efficient frameworks for simulating default times for portfolios of loans and OTC derivatives, and compares some of the features of their implied distributions of default times. Our focus is on the simulation of correlated credit events, which we treat for concreteness as the default times of a given list of entities, such as corporations, private borrowers, or sovereign borrowers. Algorithms based on recursive event-time simulation are presented that allow for random variation in an entity's credit quality over time. Moreover, we allow for correlations among default times, including correlations caused by credit events that induce simultaneous jumps in the expected arrival rates of default of different counterparties. We find that, for several hypothetical portfolios of defaultable instruments, measures of credit risk are particularly sensitive to one's assumptions about the nature of the correlation among counterparties' default intensities.