

MARKET MODELS OF FORWARD CDS SPREADS

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Abstract

The work re-examines and extends the construction of several variants of Market Models for CDS spreads presented by Brigo [1] and Schlögl [7]. For the sake of generality, we work throughout within a general semi-martingale setup. The aim is to compute explicitly the joint dynamics of a family of CDS spreads under a common probability measure. We first examine this problem for a family of single-period CDS spreads under some simplifying assumptions. Next, we derive the joint dynamics of a family of one- and two-period CDS spreads and a family of one-period and co-terminal CDS spreads under a common probability measure without any additional assumptions.

In order to derive the arbitrage-free property of a general family of forward CDS spreads, we also re-examine, correct and extend certain results from the papers by Galluccio et al. [2], Jamshidian [3], and Pietersz and van Regenmortel [6], who dealt with modeling of (non-defaultable) forward swap rates. Our goal is to give conditions for a family of forward CDS spreads to be supported by a family of traded (defaultable) bonds with positive prices. This property allows for the *deflated swap numéraires* to be expressed uniquely in terms of forward CDS spreads, which turns out to be crucial in the construction of a market model.

References

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