

Using Self-Decomposable Laws in the Construction of Local Levy Processes

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Four parameter Self-Decomposable Laws are used on scaling to synthesize the options surface. Though these scaled laws are associated with the additive Sato process we recreate them as local Levy processes with a space time dependent Levy Speed function that generalizes the local volatility model of Dupire. We show that problems with vanishing forward volatilities and skews in local volatility are effectively combated by the local Levy process.