Discrete Time Term Structure Theory and Consistent Recalibration Models

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We present theory and applications of forward characteristic processes in discrete time following a seminal paper of Jan Kallsen and Paul Krühner. More precisely we describe a rich, still tractable class of discrete time stochastic processes, whose marginal distributions are given at initial time and which are free of arbitrage. This means we can construct models with a pre-described (implied) volatility surface and quite general volatility surface dynamics. We finally describe the simulation and calibration of consistent recalibration models.