

C. Gouriéroux and Y. Lu
Staying at the Zero Lower Bound with Embedded
Markov

Discussion by Nour Meddahi

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- New model for the Zero Lower Bound (ZLB)
- Non-affine model but still tractable
- Analytical forms for pricing derivatives
- Previous work: Non-affine (tractability issue) and affine (Monfort et al., 2017)
- Better interpretation of the variables in the two regimes (ZLB and non-ZLB)

- Model for (X_t, Z_t) with Z_t discrete; $X_t = (r_t, Y_t)'$, $r_t \geq 0$ with a mass at zero, Y_t is continuous.
- $X_t \mid \underline{Z}_t, \underline{X}_{t-1} \stackrel{d}{=} X_t \mid Z_t$ and $Z_t \mid \underline{Z}_{t-1}, \underline{X}_{t-1} \stackrel{d}{=} Z_t \mid X_{t-1}$
- Consequence: both X_t and Z_t are Markovian processes.
- Tractability: FDD of Gouriéroux and Jasiak (2001).

- Stationary solution for X_t ?
- SDF: The form is selected for the tractability; any discussion about equilibrium motivation?
- Role of the Markov chain S_t ? S_t could have one single state.
- Trade-off between S_t and Y_t with $X_t = (r_t, Y_t)'$.
- Identification of the number of states of S_t ?
- Continuous time?
- Currently we observe some negative yields...