Discussion of
“The Relation between Counter-party Default and Interest Rate Volatility, and Its Impact on the Credit Risk of Interest Rate Derivatives”

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The paper provides an interesting framework to study counter-party credit risk via the correlation between default intensity and interest rate volatility.

The empirical results are intuitive and insightful.

The paper has been accepted by JCR.
Feller condition

- It is sensible to impose Feller condition on P measure parameters.

- However, it is a redundant restriction if Feller condition is imposed on Q measure parameters.

- The values of the CIR process under P and Q measures are the same, so long as the CIR process is positive under P measure, it can never be negative under Q measure even if Feller condition is violated under Q measure.

- The fit of the model can be significantly improved if Feller condition is not imposed on Q measure parameters.
Incorporate the correlation within the model

- The model won’t have a closed-form solution if the default intensity is correlated with the volatility factor.

- However, if the default intensity is modeled as an affine function of the volatility factor and another CIR process which is uncorrelated with the volatility factor, then a closed-form solution can be obtained (affine process).

- The coefficient of the volatility factor in this affine function captures the correlation between volatility and default intensity.
Unspanned volatility model

- Under the setup in the paper, the interest rate model is the so-called “unspanned stochastic volatility” model.
- The volatility factor can only be identified from Caps and Swaptions data.
- LIBOR or Swap rates do not span volatility information, in other words, Swap rates are not directly connected with the volatility.
- So this leads to a question: how does the simulated volatility, which is correlated with individual default intensity, affect the Swap rates?