

Estimation of VIX futures through Gaussian factor models

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In this study we estimate the VIX futures using Gaussian models followin the paper by Avellaneda and Papanicolau (2018). We use the two-factor model with both variables following an Ornstein-Uhlenbeck processes that accounts for the stationarity as observed from empirical data. We adopt two different strategies. In the first, we strictly followed the reference above and include the VIX spot and all VIX futures as observation variables, (or CMF - constant maturity futures). In the second approach we estimate the model using only VIX futures. In both cases the Kalman filter methodology was used. In the second approach we found smaller errors in sample. Once the hyperparameters were estimated we proceeded the simulation of some products such as ETFs and ETNs. From the practical perspective this modeling is useful to understand the behavior of futures contracts on VIX. All the VIX instruments can be used by agents to stablish strategies to hedge their positions in the market.

References

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