

# Regime switching rough Heston model

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The regime switching rough Heston model has two important features on different time scales. The regime switching is motivated by changes in long term behaviour. We introduce a Markov chain to model the switches in the long term mean of the volatility. The rough behaviour is a more local property and is motivated by the stylized fact that volatility is less regular than Brownian motion. Therefore the driving noise in the volatility equation is now a fractional Brownian motion. The techniques are much more involved than for standard Heston model, since the rough processes are neither Markovian nor semi-martingales. The regime switches introduce an additional time inhomogeneity.

## References

- [1] MESIAS ALFEUS, LUDGER OVERBECK , *Regime switching rough Heston model* , submitted