

Code for “Bayesian Nonparametric Modelling of the Return Distribution with Stochastic Volatility”

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The Matlab code `fitmxzerosv2.m` contains code to run the SV-SPM as described in the paper.

```
[holdphi, holdsigmasqv, holdmean, holdvar, holdM, holdsigmasq, holdlogsigmasq, predstar, holdk, holdW, TIME] = fitmxzerosv2(data, a, Mprior, sigmasq0, numbofits, burnin, every, c)
```

Input Arguments

- `data`: $\log(y_t^2 + 10^{-c})$,
- `a`: smoothing parameter either 0.01 or 0.05,
- `Mprior`: prior for parameter M ,
- `sigmasq0`: variance for the zero component,
- `numbofits`: number of iterations,
- `burnin`: number of iterations that consist of the burn-in period,
- `every`: thinning parameter,
- `c`: offset parameter.

Output Arguments

- `holdphi`: draws of the persistence parameter ϕ ,

- `holdsigmasqv`: draws of the variance of log-volatility σ_η^2 ,
- `holdmean`: draws of the weighted mean of the DPM,
- `holdvar`: draws of the weighted variance of the DPM,
- `holdM`: draws of the parameter M ,
- `holdsigmasq`: draws of the variance σ_z^2 ,
- `holdlogsigmasq`: draws of the log-volatility,
- `predstar`: draws of the predictive density,
- `holdk`: draws of number of components k ,
- `holdW`: draws of the weight of allocation to the zero component W ,
- `TIME`: time of the programme to run.

Example: Simulated Dataset

The file `sim1.m` contains a script that simulates data from the SV-PM model and the file `runc.m` fits these data in the SV-SPM.