

Readme file for replication code and data

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This ZIP file contains all the code and data required for reproducing the results in the paper and in the online appendix.

Paper “Restrictions on Risk Prices in Dynamic Term Structure Models”

- Cite as:
Bauer, Michael D., “Restrictions on Risk Prices in Dynamic Term Structure Model,” forthcoming in *Journal of Business & Economic Statistics*.
- FRBSF Working Paper 2011-03 (updated with newest version) available at <http://www.frbsf.org/economic-research/publications/working-papers/2011/wp11-03bk.pdf>
- Online Appendix available on my website <http://www.frbsf.org/economic-research/economists/michael-bauer/>

Data

The paper uses monthly Treasury yields that are described in Section 4. The data is stored in `data/le_data_monthly.RData`. This file contains a date vector “dates” and a matrix “Y” with the yields. These are end-of-month observations, from June 1961 to December 2012, for monthly maturities from 1 to 120 months. The paper uses only a sample from January 1990 to December 2007, and only maturities of 1 through 5, 7, and 10 years.

If you would like to use this data in your own work, you need to first ask Anh Le for permission.

Code

The code is written in R. You can download and install R for free at <https://www.r-project.org/>. I used version 3.2.0.

You will need to install the following R packages from CRAN:

- MCMCpack
- mvtnorm

Reproduce simulation study (Section 3)

First run the scripts for the simulations as follows (from the main directory)—Note that each of these each take several hours to run.

```
source("R/sim_mcmc.r")
source("R/sim_gvs.r")
source("R/sim_ssvs.r")
source("R/sim_rjmcnc.r")
```

To analyze the results using `results_simulation_sec_3.r`.

Reproduce empirical analysis (Sections 4 and 5)

First run the following estimation scripts:

- `est_mcmc.r` for estimation of unrestricted model (use “M0”)
- `est_gvs.r`, `est_ssvs.r`, `est_rjmcnc.r` for joint model-parameter sampling

Then carry out sensitivity analysis using `est_gvs.r`

- set `g` to 10, 1000, and 10000
- for each setting change string from “gvs” to, for example, “gvs_10” in call to `getResultsFileName`

Now you can analyze the results for estimation, model selection, and sensitivity analysis using `results_estimation_sec_4.r`. This produces tables 3-6.

Before you can analyze the economic implications of the different models, you’ll need to estimate the restricted models individually using script `est_mcmc.r`. Change `model` to “M1”, “M2”, “M3”, respectively.

You are now able to analyze volatilities, term premia, and return predictability using `results_economics_sec_5.r`. This produces tables 7-9 and figures 1-2

Questions, feedback, suggestions?

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