# DSGE Modelling and Financial Frictions

## Practice session 2

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# Estimation Codes

- In the Estimation folder you have two sub folders.

  NK codes for the estimation and validation of the NK model.

  FF codes for the estimation and validation of the three banking models.

- For each model you have three sub folders
  - **First stage** Estimation of the posterior mode.
  - **Identification** Code for the identification check.
  - **Second Stage** Full MCMC estimation with post estimation simulations and variance decomposition.
- The folder **Second Moments** contains some extra files for second moment comparisons (one folder inside NK and a common folder for the three banking models).

# Second Stage Estimation: GK Model

- Go to Estimation→FF→GK→First Stage
- Open **GK_RES_Course_est_PI_MCMC.mod**
- **GK_RES_Course_est_PI_mode.mat** is the file with the posterior mode computed after the first stage.

# Estimation commands and options

- *mode_file=GK_RES_Course_est_PI_mode* together with *mode_compute=0*) tells dynare not to compute again the posterior mode but to use the one we found yesterday.
- *mh_replic=1000* sets the number of draws. Here for practical purposes we set it to 1000.
- *mh_nblocks=2* sets the number of chains.
- The covariance matrix needs to be adjusted in order to obtain reasonable acceptance rates. Thus, for example, the scale used for the jumping distribution in the MH is set to 0.15 (option *mh_jscale=0.15*), allowing good acceptance rates (around 20%-30%).
- The first 20% of iterations (initial burn-in period) are discarded in order to remove any dependence of the chain from its starting values (use *mh_drop*: sets the percentage of discarded draws).

# Post Estimation Simulations

- Just after the estimation command you have *stoch_simul(irf=20,ar=10,conditional_variance_decomposition=[1 4 10 100]) dy pinfobs robs rkn_obs;*

- Stochastic simulations of the model computed at the estimated posterior means of the structural parameters and shocks.

# Second Moments

- Go to Estimation→FF→Second Moments
- The results files from the second stage estimation need to be in this folder to be loaded.
- *data_stats.m* computes the second moments and statistics of the data.
- For the model implied statistics and second moments you can use the .log or the results files.
- *acfs_plot.m* computes and plots the Autocorrelation figures using calling *acfcomp.m* and *acfcomp.m*
- *irfs_plot.m* load and plots the bayesian IRFs for a shock at the time.