

“Multi-Asset Noisy Rational Expectations Equilibrium with Contingent Claim”
Georgy Chabakauri, Kathy Yuan, Konstantinos E. Zachariadis

Description of Matlab files for replicating Figures 1 and 2

This paper does not use any datasets or simulations, and does not contain any tables. Figures 1 and 2 are generated using Matlab version 2019b code, described below.

Main Files

1. Main_1_Asset_Prices.m

This file replicates Figure 1 that shows asset prices for various distributions when the market is effectively complete. One just needs to run the file to generate the results.

2. Main_2_Illiquidity.m

This file replicates Figure 2 that shows the measure of market illiquidity and trading strategies of informed and uninformed investors when the distribution of the asset payoff is drawn from the mixture of normal distributions. The computations are based on equations for illiquidity in Proposition 9. One just needs to run the file to generate the results.

3. Figure1a.eps, Figure1b.eps, Figure1c.eps are outputs of Main_1_Asset_Prices.m;
Figure2a.eps, Figure2b.eps, Figure2c.eps are outputs of Main_2_Illiquidity.m.

Auxiliary files

4. Price_GG.m, Price_MN.m, Price_SKN.m

These files are called from Main_1_Asset_Prices.m to compute asset prices for the cases of generalized gamma, mixture of normals, and skew-normal distributions, respectively. The computations are based on equations in Proposition 7. Figure 1 shows the prices for the latter distributions when the market is effectively complete. However, these functions also compute the prices in incomplete markets, which are not shown in the paper. The computation of incomplete-market prices is numerical and is based on the results in Lemma A.11 in the Appendix. The numerical method is the method of bisections.

5. PC_GG.m, PC_MN.m, PC_SKN.m

These functions perform some intermediate computations for the latter functions Price_GG.m, Price_MN.m, Price_SKN.m.

6. skewness.m

Some intermediate computations for Price_SKN.m

7. EqIm_com.m, EqIm_inc.m

These functions are called from Main_2_Illiquidity.m to compute the equilibria in effectively complete and incomplete markets by solving equations in Propositions 1 and 3, respectively. EqIm_inc.m computes the equilibrium numerically using the method of bisections.

8. Solver_x.m

Implements numerical method of bisections for EqIm_inc.m.

9. Func.m

This function is used in solver_x.m to compute functions f_U and f_I defined in Proposition 3.