Confidence Cycles and Liquidity Hoarding

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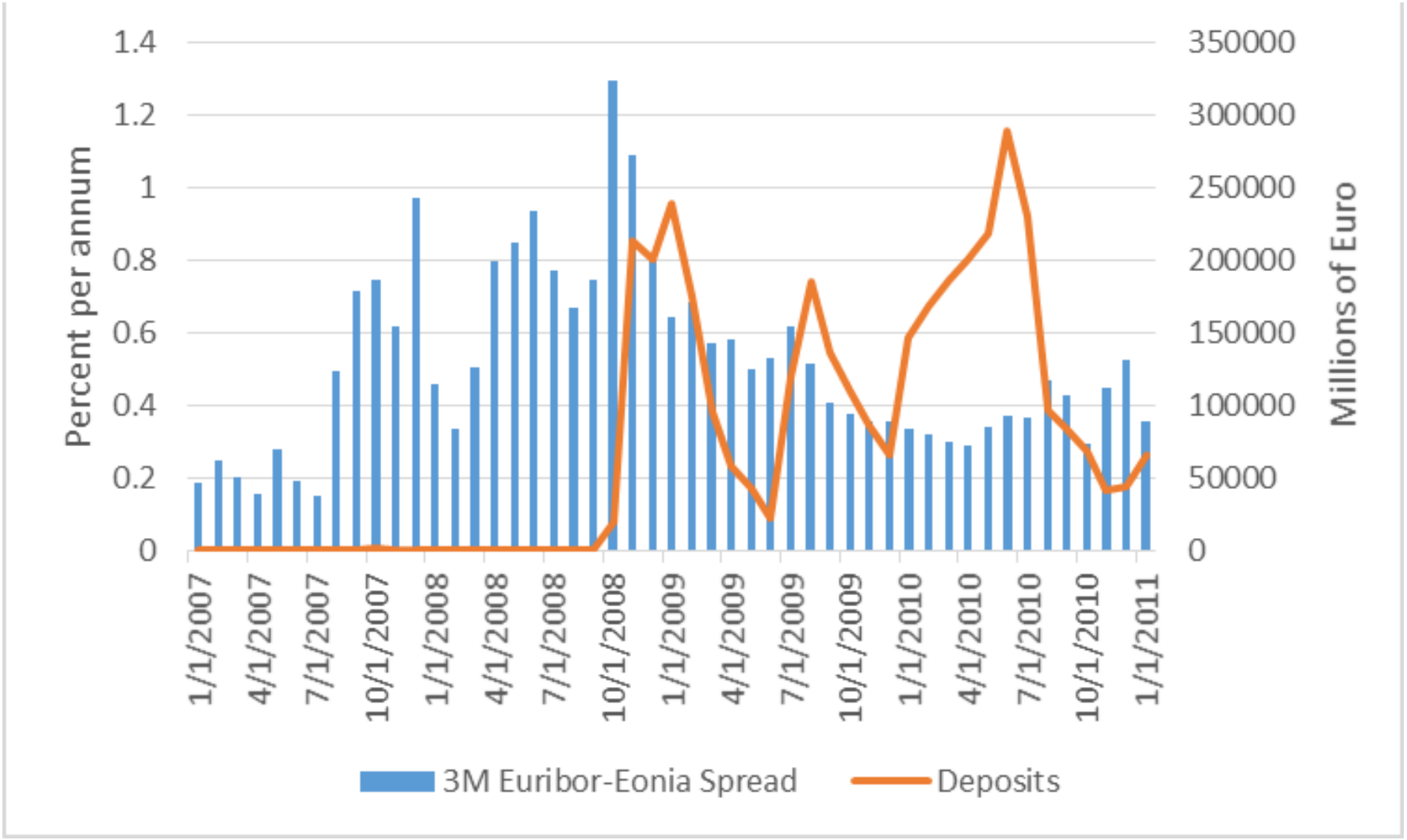
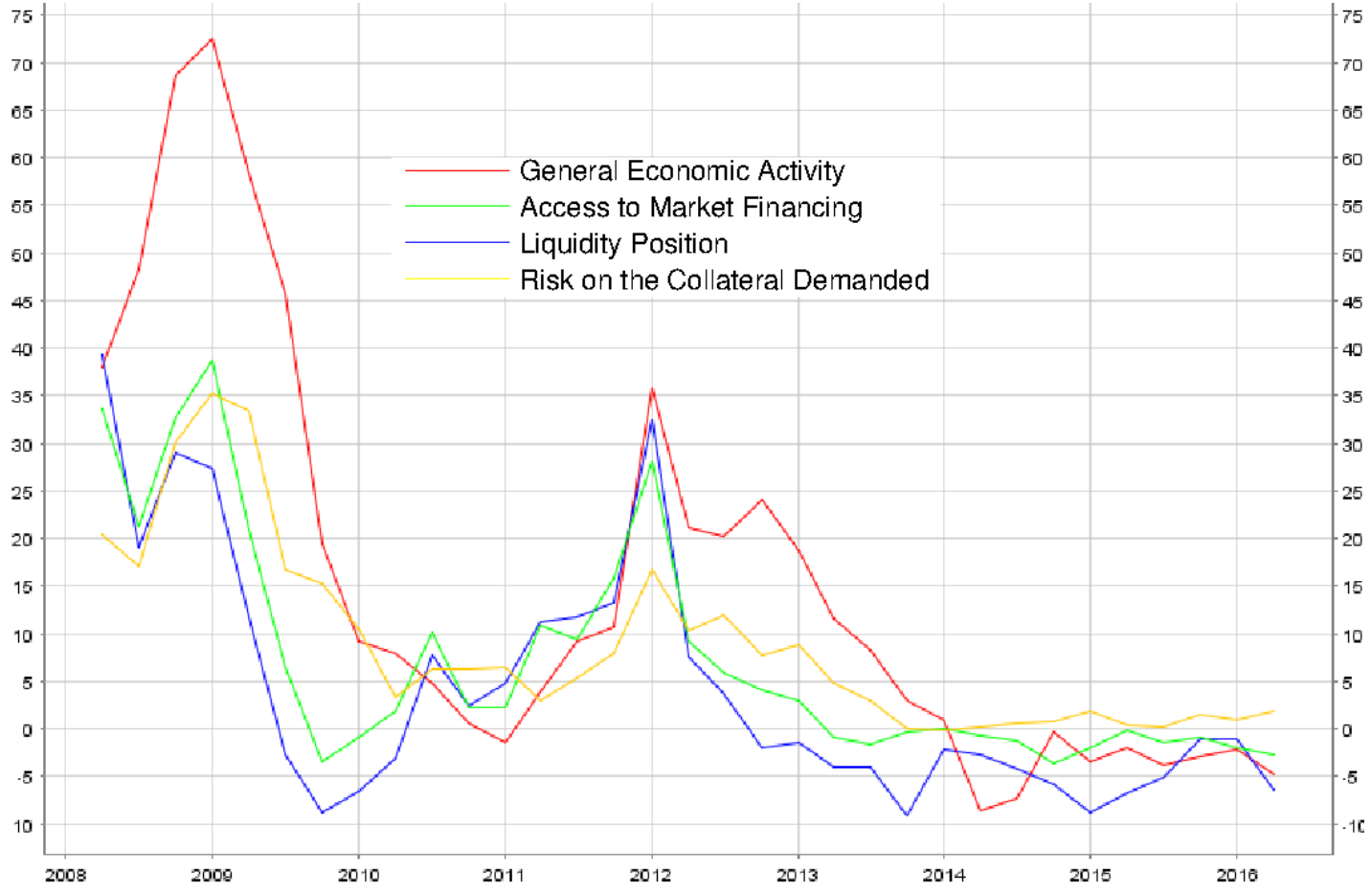
Motivation

- Credit crunch and central banks policy
- No agreement about the policy effect in the literature:
  - Curdia and Woodford (2011) and Taylor and Williams (2009): was not efficient or irrelevant
  - Del Negro et al. (2011) and Christensen et al. (2014), Gertler and Karadi (2011): helped avoid more severe recession
- Liquidity hoarding
- Change in sentiment

Liquidity hoarding



Impact on bank's lending standards



Paper contribution

- Counterparty risk in the interbank market
- Liquidity hoarding
- Policy exercises:
  - liquidity provision, targeted liquidity provision, declining policy rate, relaxing collateral constraints

Banking sector overview

- Two types of assets:
- safe (reserves), pays R_t^{res}
- risky, pays R_{t+1}^k
- Banks differ by their beliefs about risky asset return, $\hat{E}_t^i R_{t+1}^k \sim N(\bar{R}_t^{k,KF}, P_t^{KF})$
- Continuum of banks, indexed by i, lend to the real sector and to each other
- Banks are risk neutral

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- Experts' opinions

$$\mu_t^i = \mu_t + \theta_t^i \tag{2}$$

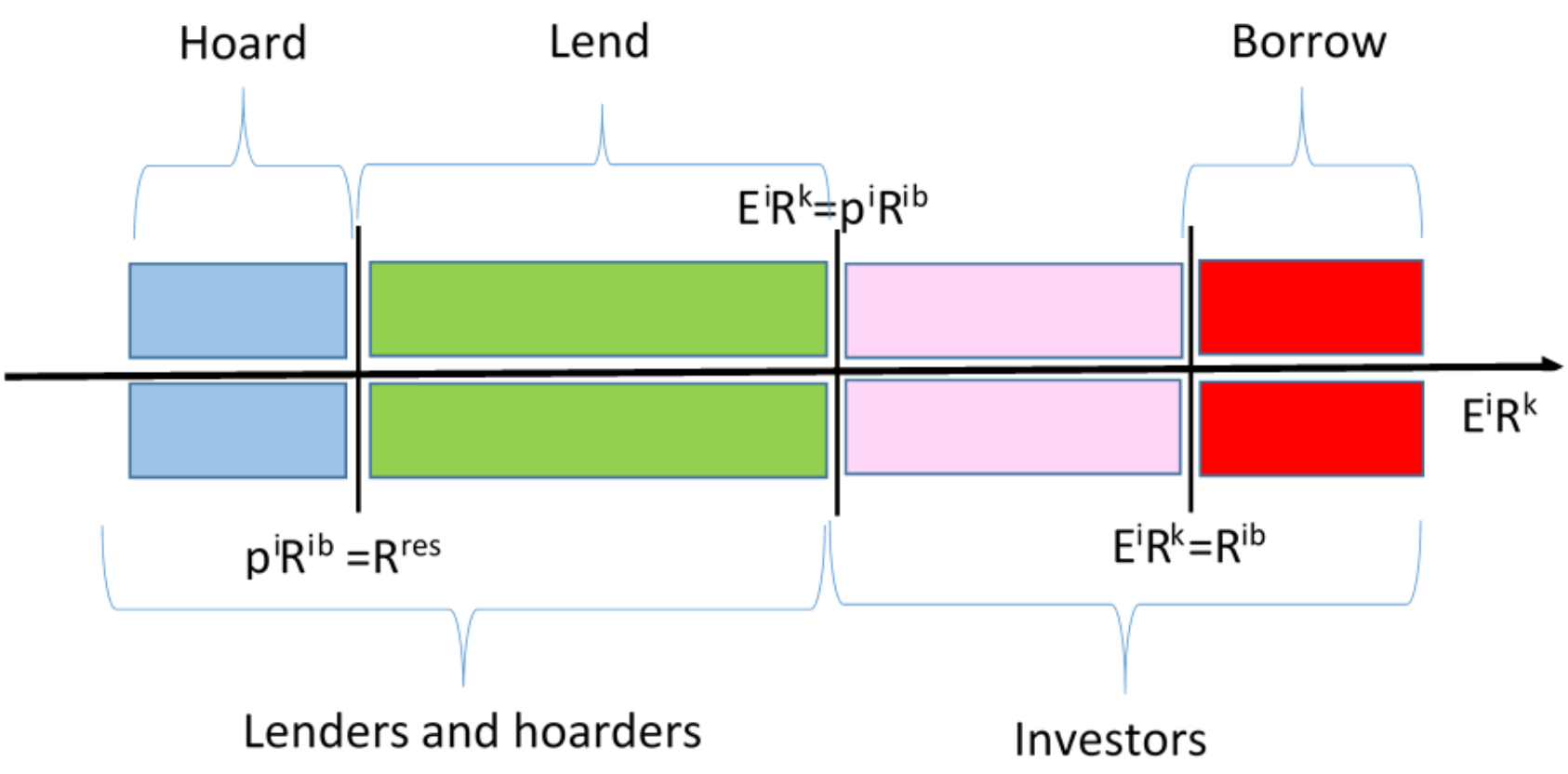
Bank's balance sheet

Assets	Liabilities
Manufacturers' claims	Deposits
Reserves	Interbank borrowing
Interbank lending	Net worth

Interbank market

- Borrowing is limited
  $L_t^i = \lambda_b * N$
- Interbank lending is risky
- Probability that the loan is repayed (lender's perspective)
  $p_t^i = Prob\left(\hat{E}_t^i R_{t+1}^k \left(1+\lambda_b\right) > R_t d_t + \lambda_b R_t^{ib}\right)$

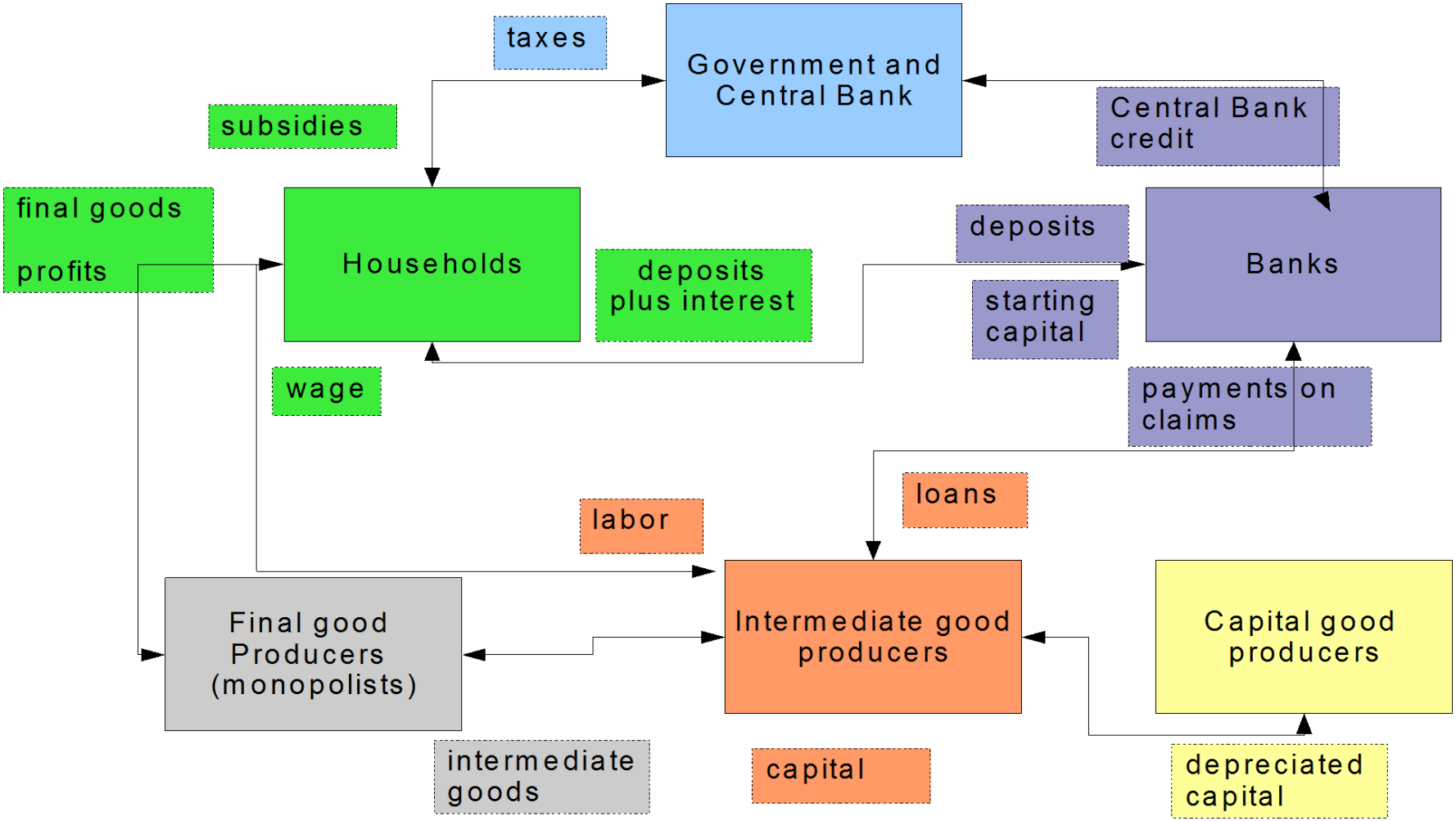
Interbank market and beliefs



Predictions from simple model

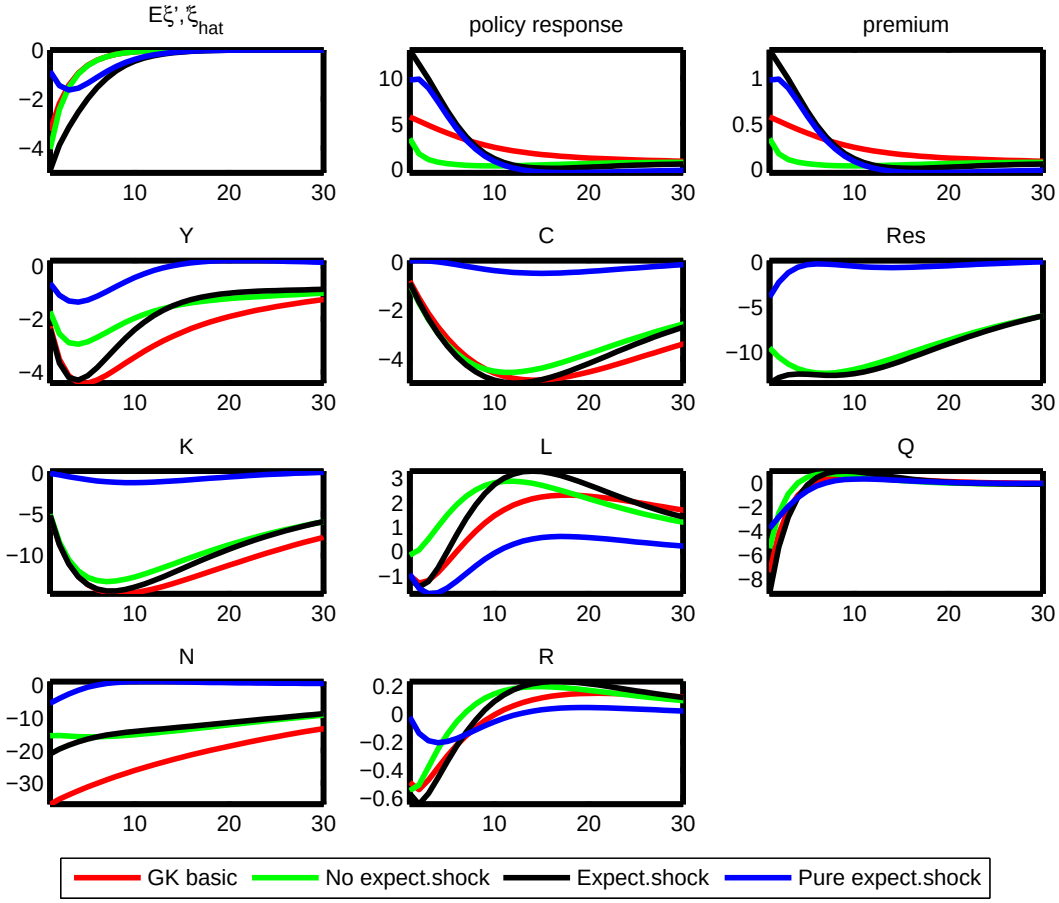
- For a fixed dispersion, with very low average belief IBM collapses
- For a fixed average, with very low or very large dispersion IBM collapses
- When the market beliefs are too low (IBM collapses):
  - Liquidity provision effect is conditional on market optimism
  - Effect of reserve rate decline is limited or absent
  - Relaxing collateral constraint has no effect

Model overview



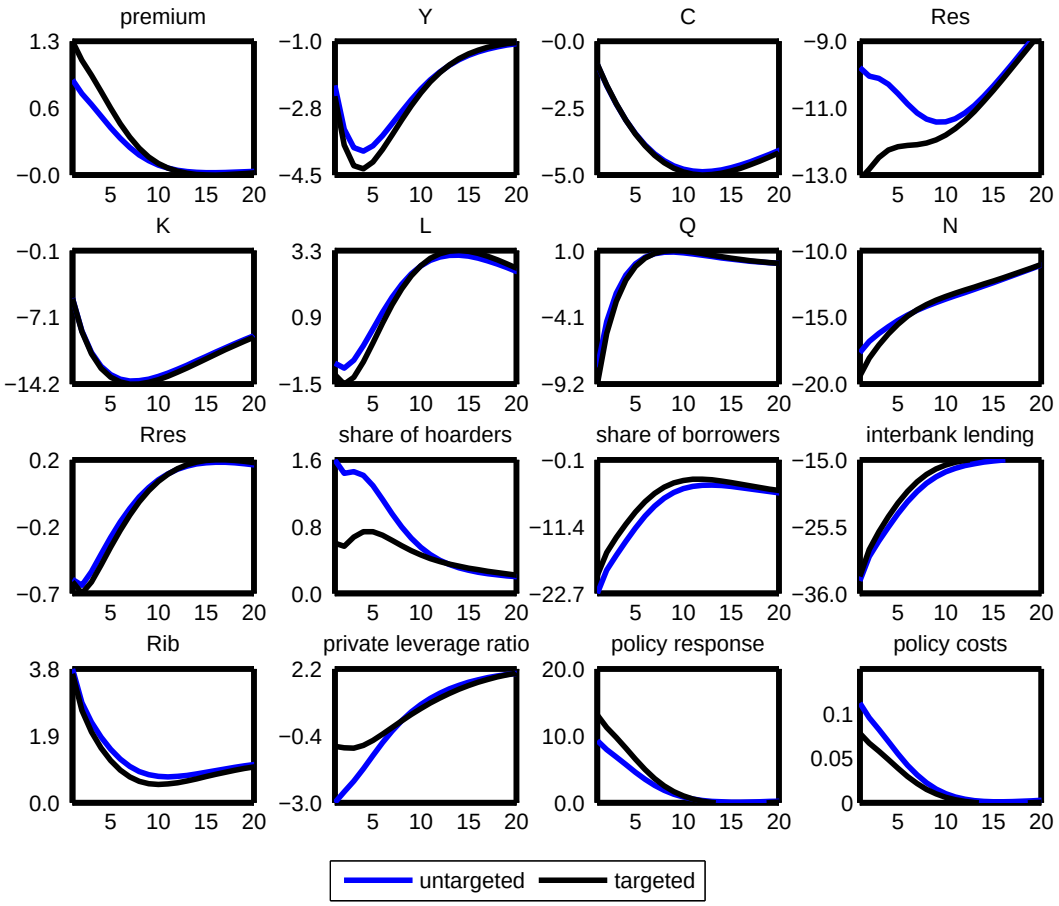
- "Fundamental" shock: $\zeta_t = \rho_\zeta \zeta_{t-1} + \mu_t + \varepsilon_{\zeta,t}$
- Sentiment shock: $\hat{\mu}_t^i = \mu_t + \eta_t^i$
- Policy: $\nabla_t^p = \kappa^p \left(R_{t+1}^k - R_t - (\overline{Rk - R}) \right)$
  - untargeted $Q_t K_{t+1} + Res_t = D_t + \nabla_t^{unt} (Q_t K_{t+1} + Res_t)$
  - targeted $Q_t K_{t+1} + Res_t = D_t + \nabla_t^{targ} Q_t K_{t+1}$
  - interest rate $R_t^{res} - \nabla_t^r$
  - collateral constraint $\lambda_b - \nabla_t^\lambda$
- Policy costs: $\tau \nabla_t^{unt} (Q_t S_t + Res_t)$ or $\tau \nabla_t^{targ} (Q_t S_t + Res_t)$

IRFs (5%) sentiment and fundamental shocks



- agents overestimate crisis, ξ
- model results in a smaller drop in net wealth (diversification) [slide 18]
- similar drop in capital
- pessimistic shock magnifies the recession

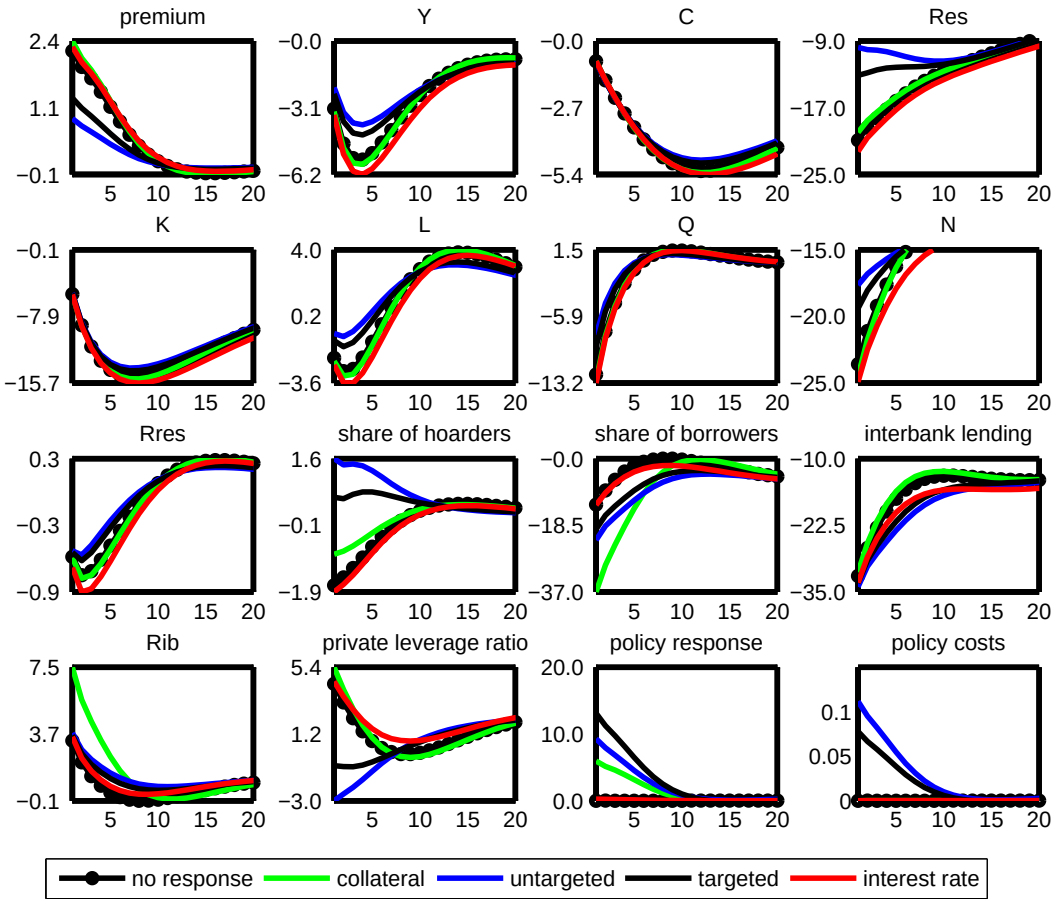
Policy effects with a crisis shock



Under targeted policy:

- smaller safe asset holdings
- smaller share of hoarders
- smaller price of capital
- slightly larger drop in capital and output

Policy effects continued



- lowering reserve rate worsens bank's balance sheets
- relaxing collateral constraints increase IBM rate, with no effect on the IBM volume

Conclusion

- Investors' expectations generate long and large responses in model variables
- Banks hoard some liquidity provided by central bank due to their low sentiment
- Liquidity provision mitigates crisis slightly, but does not stop it, nor decreases its duration

Standard deviations of model variables vs data

	Our Model	Baseline	Data
Output, Y	0.109	0.17	0.034
Consumption, C	0.222	0.28	0.041
Net Worth, N	0.783	1.54	0.817

For the output we use GDP per capita, for the consumption - final consumption per capita, for the net worth - net financial assets of financial corporations. All data are from Eurostat and for the Euro area. The standard deviations are calculated for the log differences of the series [back to slide 14]