

Interest Rate Spreads and Forward Guidance

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Background and motivation

Forward Guidance: Communication about future course of monetary policy by central banks

- Objective: Stimulation of aggregate demand by increasing inflation expectations and reducing current long-term interest rates

"Forward guidance puzzle"

- Empirical effects (Del Negro et al., 2015) much weaker than predicted by canonical New Keynesian model (Eggertson and Woodford, 2003, BPEA)
- Some theoretical solutions exist, but little empirical evidence on transmission



The paper in a nutshell

Main idea: Forward guidance effects dampened if private-sector interest rates do not react one-to-one with policy rate

⇒ **Interest rate spreads**

This paper:

- Focus on role of assets' **liquidity** → substitutability with money
- Documents that interest rate spreads related to liquidity rise in response to forward guidance
- No forward guidance puzzle in New Keynesian model with endogenous liquidity spreads



Empirical analysis of liquidity spread reactions

- Event-study** analysis of liquidity premia in one-day window around FOMC meetings (1990-2019):

$$\Delta y_t = \beta_0 + \beta_1 \tilde{F}_{1,t} + \beta_2 \tilde{F}_{2,t} + e_t,$$

where:

- LHS** (Δy_t): One-day change of various liquidity spreads and a common liquidity factor (Del Negro et al., 2017, AER)
 - Compare assets of same maturity and low risk, but different liquidity
- RHS:** Quantitative measures of change of current monetary policy stance ($\tilde{F}_{1,t}$) and expected path of monetary policy ($\tilde{F}_{2,t}$) at FOMC meeting on date t (Gürkaynak et al., 2005, IJCB)



Empirical results

	Liquidity Premium LP	Commercial Paper / Corporate Bond spread				
		3M	3Y	5Y	10Y(A)	10Y(B)
Spot rate, F_1 (target factor)	-0.41*** (0.13)	-0.30*** (0.11)	0.15* (0.088)	0.043 (0.055)	-0.053 (0.056)	-0.032 (0.042)
Expectations, \bar{F}_2 (path factor)	-0.28*** (0.059)	-0.11* (0.068)	-0.13*** (0.048)	-0.17*** (0.035)	-0.30*** (0.037)	-0.31*** (0.035)
R^2	0.29	0.10	0.09	0.19	0.46	0.51
Observations T	237	122	165	165	237	237
QE dummies	yes	yes	yes	yes	yes	yes



New Keynesian model with liquidity spreads

Households

- supply labour, consume goods, purchase government bonds
- face "liquidity-in-advance" constraint: demand money against eligible securities (T-bills) from central bank: $P_t c_t \leq M_{t-1} + I_t$

Firms produce goods using labour, subject to Calvo friction

Fiscal authority offers T-bills and pays lump-sum transfers

- Fiscal budget: $B_t^T/R_t + P_t \tau_t^m = B_{t-1}^T + P_t \tau_t$
- Short-term debt grows exogenously with $B_t^T = \Gamma B_{t-1}^T$

Central bank supplies ("injects", I) money at repo rate R_t^m :

$$I_t = \Delta B_t^C / R_t^m$$

- Lagrange multiplier η_t measures liquidity value of treasuries

⇒ **Liquidity premium** between treasuries and non-eligible private sector assets

Equilibrium conditions for linearised version

$$c_t \leq \bar{b}_{t-1} - \pi_t - R_t^m \text{ (binds if } R_t^m < R_t^{IS})$$

$$\sigma c_t = \sigma E_t c_{t+1} - R_t^{IS} + E_t \pi_{t+1},$$

$$\pi_t = \beta E_t \pi_{t+1} + \chi [(\sigma_n + \sigma) c_t + \bar{R}_t^{IS}],$$

$$\bar{b}_t = \bar{b}_{t-1} - \pi_t,$$

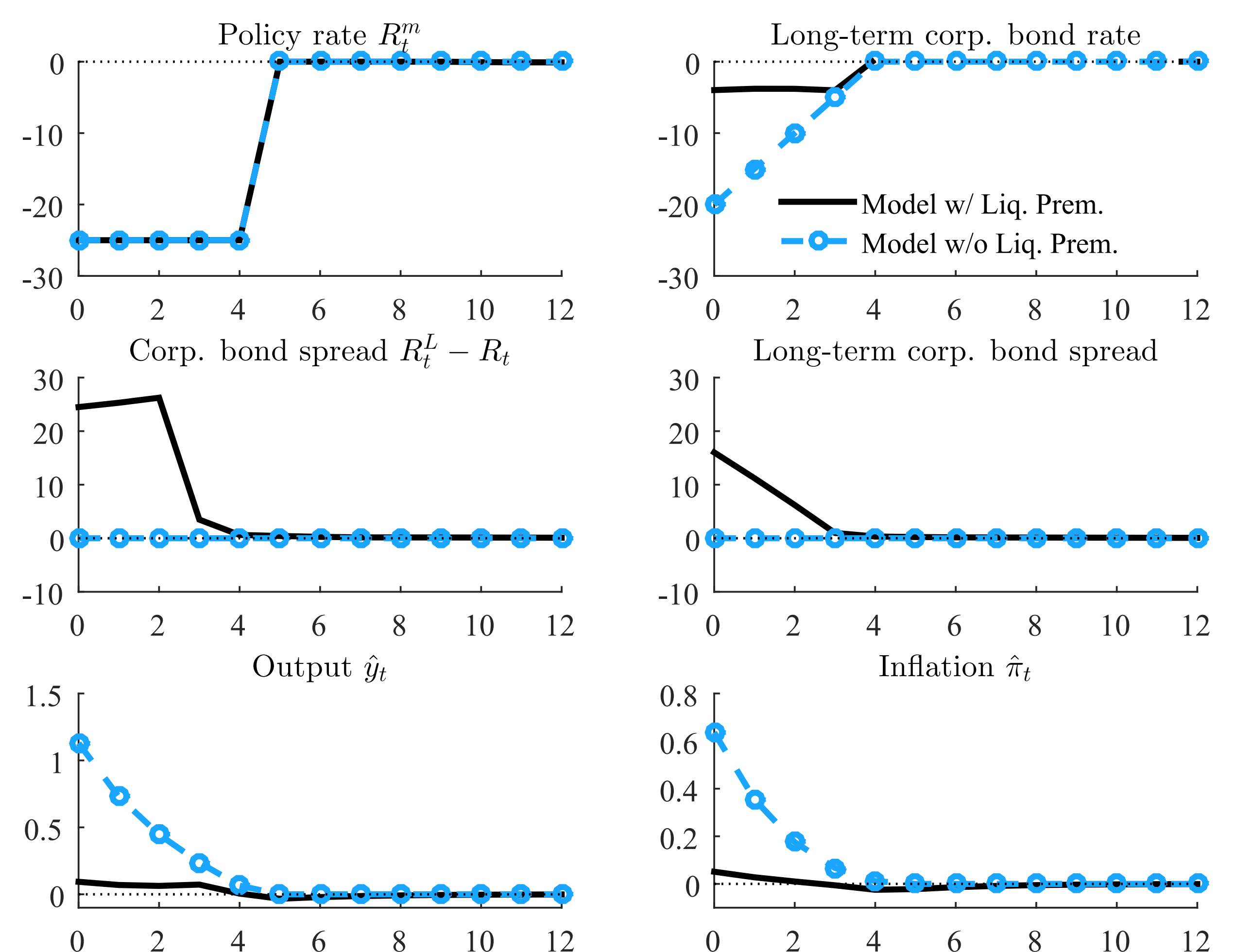
where $\chi = (1 - \phi)(1 - \beta\phi)/\phi$ for a monetary policy rate

$$\bar{R}_t^m = \rho_\pi \pi_t + \varepsilon_t^m + \sum_{k=1}^K \varepsilon_{t,t-k}^m,$$

where $\rho_\pi \geq 0$, for a given $b_{-1} > 0$.



The effects of forward guidance in calibrated model



Conclusions

- Forward guidance raises interest rate spreads measuring liquidity premia in line with empirical evidence
- No "forward guidance puzzle" in augmented model
 - Impact response of output and inflation 12 times smaller than in standard New Keynesian model
 - Output and inflation response independent of forward guidance horizon

