MONETARY POLICY WITH AMPLE CENTRAL BANK RESERVES: DISCUSSION

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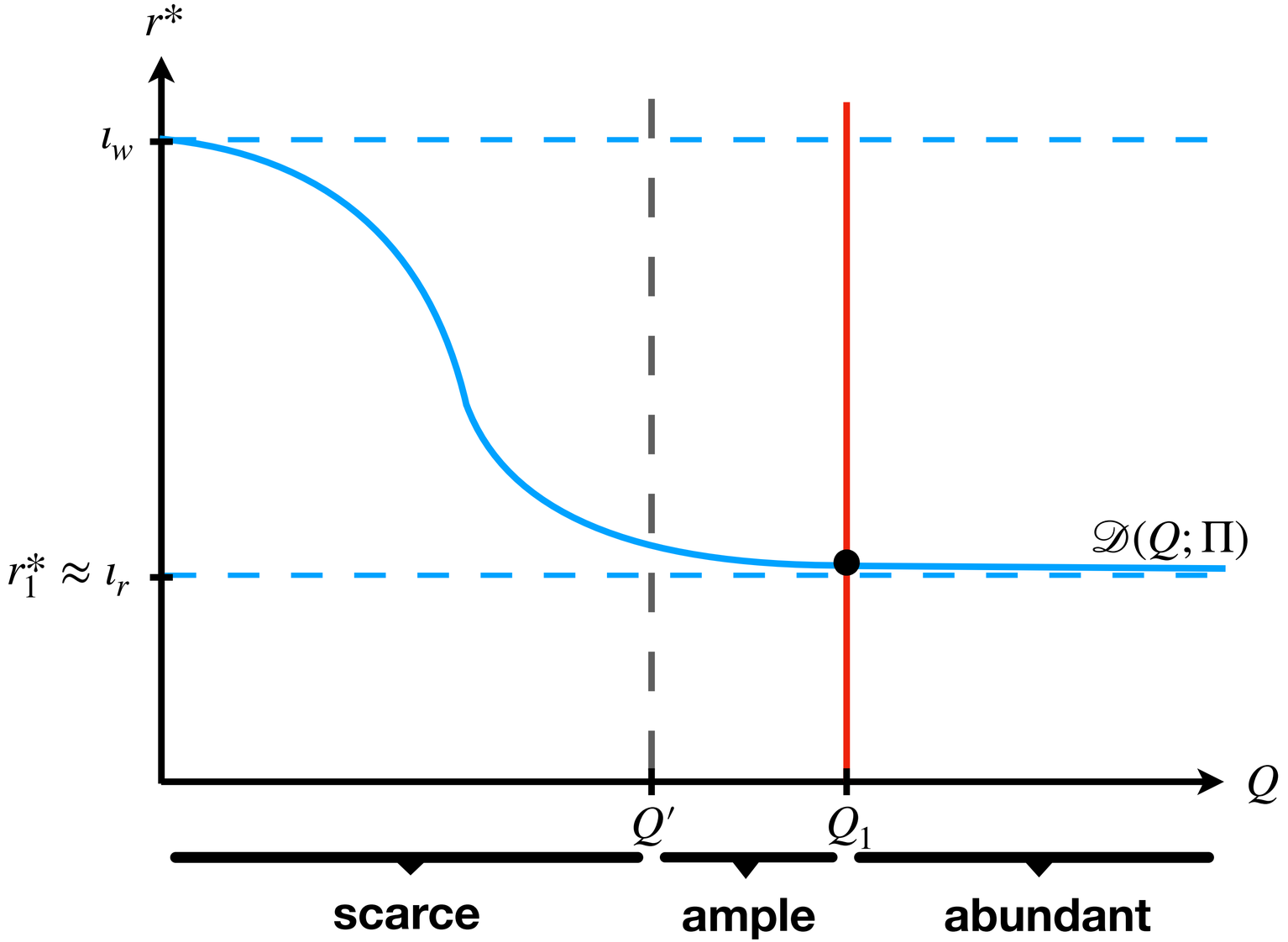
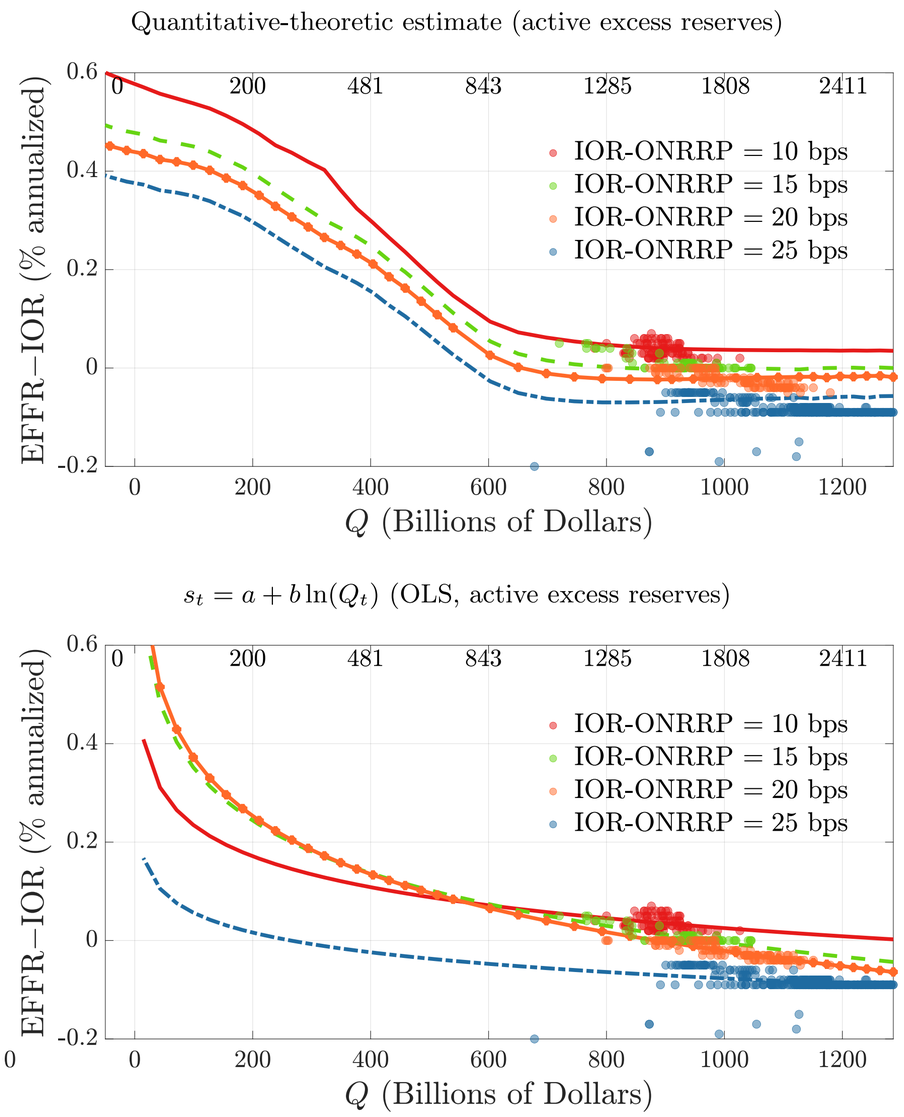
17th of September, 2025
13th Research Network Conference
Bank for International Settlements

The stylized market for reserves



- Navarro: where is the (blue) demand curve?
- Salgado-Moreno: behind a demand curve is an alternative, and that is government bonds
- La Spada: where should the (red) supply curve be?

Lagos Navarro



- Rich and realistic OTC model of interbank borrowing (Afonso, Lagos 2015).
- Fedwire data calibration.
- In sample: fit similar to OLS, although matching many moments in the distribution
- Virtue/vice: model says flat curve at 1.3tr; OLS would suggest 2.5tr.

Lagos Navarro

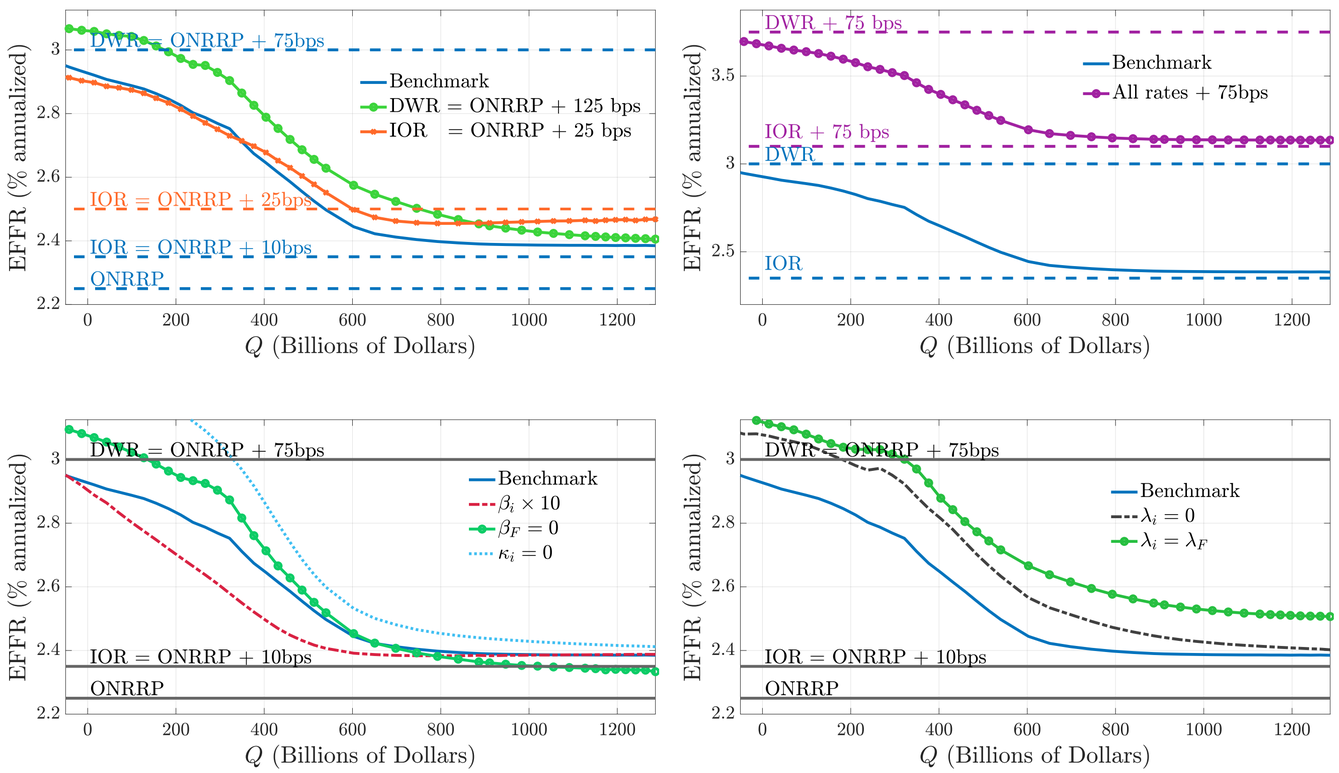
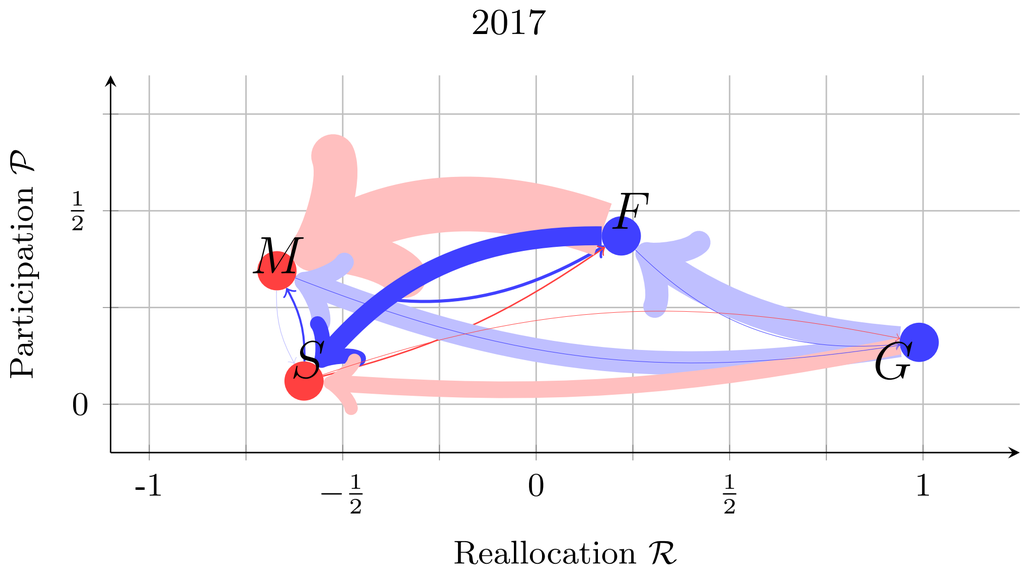


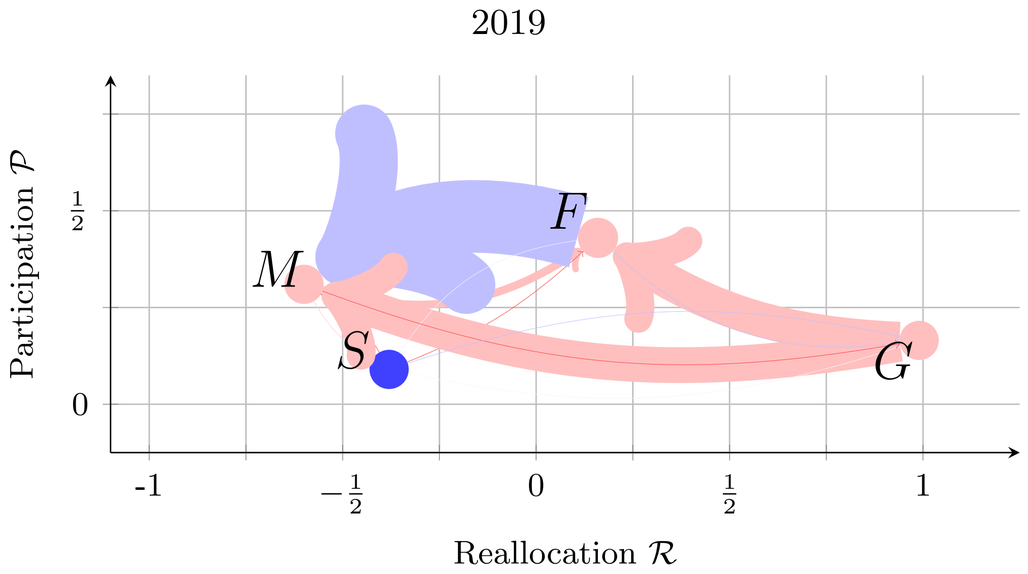
Figure 6: Theoretical aggregate demand for reserves: shifts and rotations.

Notes: In all panels, the curve labeled "Benchmark" is the theoretical aggregate demand $\iota^*_{\mathrm{Y}_\omega} = \mathcal{D}(Q_{\mathrm{Y}_\omega}; \Pi)$ for the model calibrated as in Table 1, and with $\iota^*_{\mathrm{Y}_\omega}$ and Q_{Y_ω} computed with the interpolation procedure described in Section A.6, for $\mathrm{Y}_0 = 2017$ and $\mathrm{Y}_1 = 2019$. Top-left panel: benchmark aggregate demand, and aggregate demands resulting from two experiments: (i) increase DWR by 50 bps; (ii) increase IOR by 15 bps. Top-right panel: benchmark aggregate demand, and aggregate demand resulting from increasing all administered rates (i.e., DWR, IOR, and ONRRP) by 75 bps. Bottom-left panel: benchmark aggregate demand, and aggregate demands resulting from three experiments: (i) multiply $\{\beta_i\}_{i\in\mathbb{N}}$ by 10; (ii) set $\beta_F = 0$; (iii) set $\kappa_F = \kappa_S = 0$. Bottom-right panel: benchmark aggregate demand, and aggregate demands resulting from two experiments: (i) set $\lambda_i = 0$ for all $i \in \mathbb{N}$; (ii) set $\lambda_i = \lambda_F$ for all $i \in \mathbb{N}$.

- Real benefit is policy counterfactuals
- Emphasizes: differences in IOR vs ONRRP vs DWR can really change shape of the curve.
- Suggested experiment: lowering costs of DW borrowing ($\iota_s = 75.8$bps), and how could shift to a lending-based system.

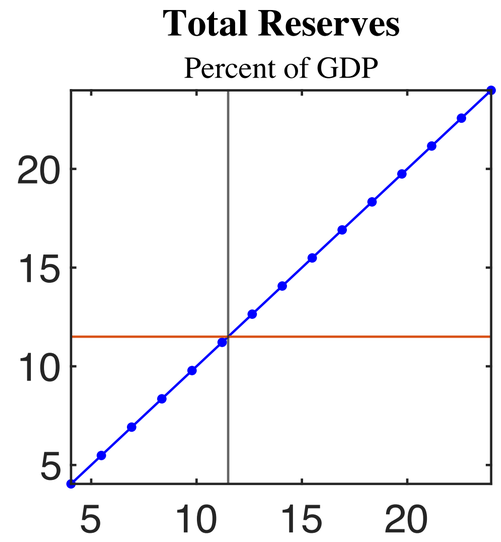
Lagos Navarro

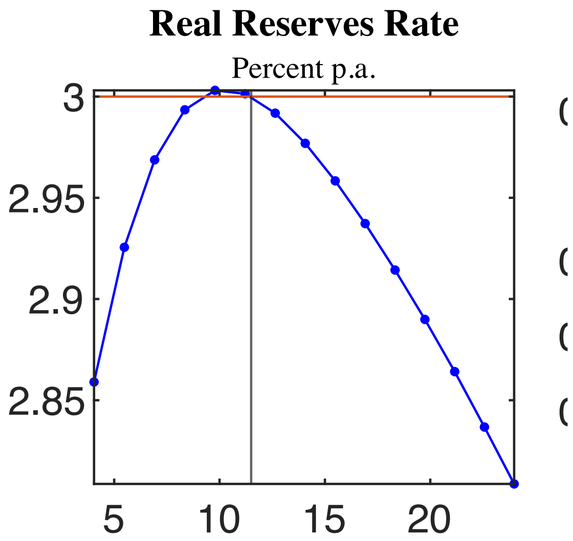




- With 4 banks that are on one side of almost every interbank borrowing, should we be focussing on the search and matching, or on the bargaining instead?
- Yet, weakest part of the calibration: assume bargaining weight is and 1/20 if dealing with GSCs, otherwise 1/2.

Salgado-Moreno and Kumhof

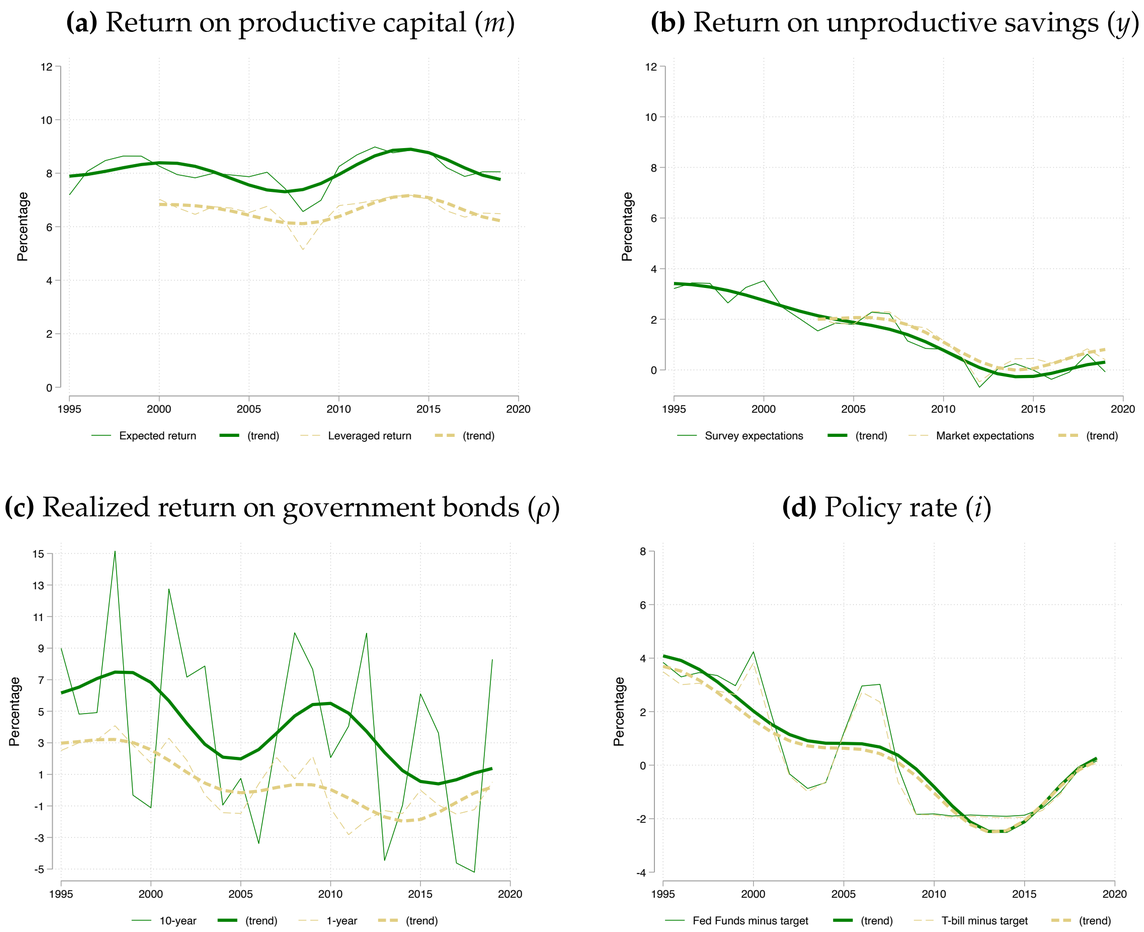




- Quantitative tightening:
  - risk premium on government debt rises, as private sector must hold more: raises lending rates
  - Liquidity premium (discount) on reserves rises (falls) as reserves become more scarce: neutral policy rate falls
- Second effect dominates around 10% of GDP
- Versus monetary financing (reserves to buy new bonds) no risk premium effect.

Salgado-Moreno and Kumhof

Figure 1: The four R-stars and their trends between 1995 and 2019



Notes: Panel (a): Expected return is the US nominal return on private capital minus the average of expected 10-year-ahead inflation in the SPF. Leveraged return is a weighted average cost of capital using Baa bonds and effective tax rates. Panel (b): "Survey expectations" subtracts from the 10-year yield on US government bonds the average expected 10-year-ahead inflation in the SPF, while market expectations is the yield on a 10-year Treasury inflation-protected security. Panel (c): Holding period real return on 10-year and 1-year US government bonds. Panel (d): Federal Funds rate or 3-month government bond rate minus 2%. Trends calculated using a Mueller-Watson filter with a 10-year window.

Other spreads are as important

- Lending to real economy: risky, frictional, ultimately driving output
- Long-term government bond yields: duration risk and debt management
- Realized returns: unexpected inflation and the government budget constraint

Large drivers of r* compared to liquidity

Reis (2025) "The Four R-stars: From Interest Rates to Inflation and Back"

Afonso, La Spada, Mertens, Williams

$$S = \begin{cases} \bar{S} + \nu - (\alpha + \eta)(X - \bar{X} - \epsilon) & \text{if } X < \bar{X} + \epsilon, \\ \bar{S} + \nu & \text{else,} \end{cases}$$

$$\text{Prob}\Big(\epsilon < \bar{\epsilon}(X)\Big) = G\Big(\bar{\epsilon}(X)\Big),$$

$$\mathscr{L} = \min_X \frac{1}{2}\left((\mathbb{E}S - \hat{S})^2 + \text{Var}[S] + \lambda(X - \hat{X})^2\right)$$

Result 2 (Optimal Level of Reserves and Expected Spread)

The first-order condition yields the following equation for the optimal level of reserves, X^{**}:

$$X^{**} = \bar{X} + \frac{1}{\alpha^2 + \sigma_\eta^2 + \lambda}\left(\alpha\Big(G(\bar{\epsilon}) - 1\Big)(\hat{S} - \bar{S}) + (\alpha^2 + \sigma_\eta^2)\mathscr{G}(\bar{\epsilon}) - \lambda(\bar{X} - \hat{X})\right),$$

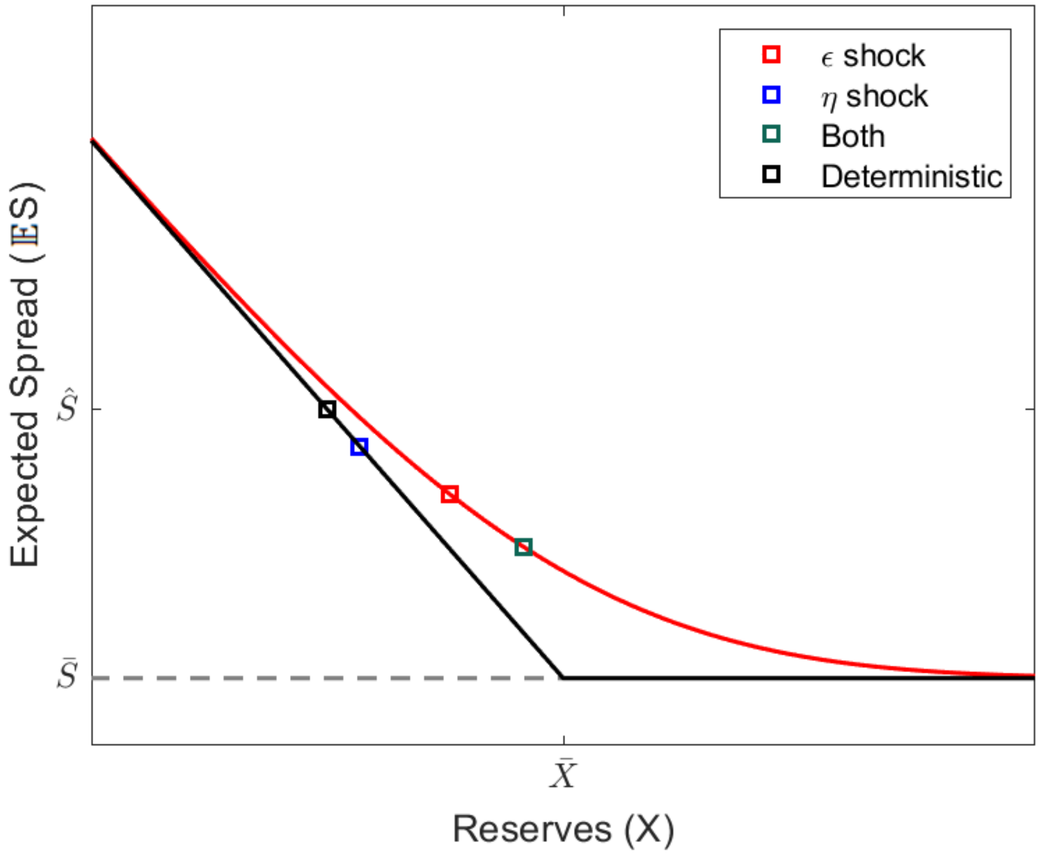
which implies the inequality $X^{**} - \bar{X} < \mathscr{G}(\bar{\epsilon})$.

Reserves and uncertainty

- if uncertainty about the satiation point: supply more reserves, since spread is more likely to be pinned down.
- if uncertainty on slope of demand, supply more, from Brainard attenuation

If large enough uncertainty may even be in the abundant region.

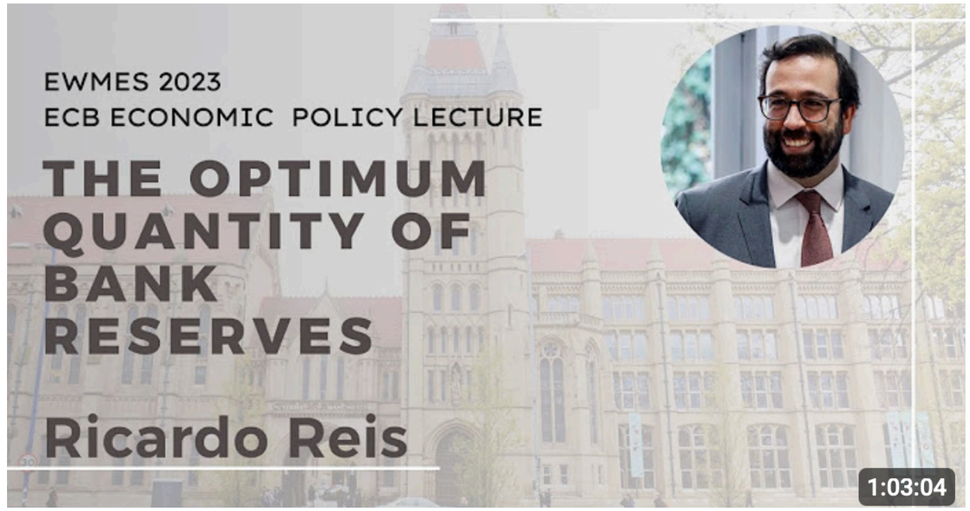
Afonso, La Spada, Mertens, Williams



Optimal control problem, misses Lucas critique and micro-foundations:

- Demand would change with the policy?
- Demand-driven floor would do better?
- Shouldn't loss function be asymmetric?
- Financial crises and the elasticity of the system for both private and public liquidity

Parting thoughts (Reis)



LSE THE LONDON SCHOOL OF ECONOMICS AND POLITICAL SCIENCE

ES Society Econometric

THE OPTIMUM QUANTITY OF BANK RESERVES

ECB ECONOMIC POLICY LECTURE

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18th of December, 2023
(Revised on the 19th)
European Winter Meeting, Econometric Society
Manchester, United Kingdom

1. Take a cue from Friedman: the optimal quantity of bank reserves is… how you should remunerate them. (Tiering)

2. Behind a reserve is an asset of the central bank. With those come fiscal risks that must be passed on to the government budget constraint. Have to manage them.

3. Private competition: interbank markets in past, stablecoins in the future.