

# Discussion: “Money and Banking in a New Keynesian Model,” by M. Piazzesi, C. Rogers, and M. Schneider

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- Neoclassical growth model.
- Dixit-Stiglitz monopolistic competition.
- Prices denominated in some stuff that is not held in equilibrium.
- Calvo pricing technology, in terms of prices denominated in stuff.
- “Monetary” policy is dictating the price of a bond that pays off in units of stuff next period.
- Can determine prices of limitless types of assets, as expected value of appropriately discounted streams of future payoffs.
- But those assets have nothing to do with the equilibrium allocation.

# What are the features of a typical modern central bank?

- Monopoly on the supply of physical currency.
- Daylight interbank payments through transfer of balances in central bank reserve accounts.
- Central bank lending as normal operating procedure and/or as lender of last resort during idiosyncratic or aggregate crises.
- Restricted activities – secured lending and asset swaps.
- Operating procedure in short run:
  - Corridor or channel system: peg overnight interest rate through daily intervention, typically in a repo market.
  - Floor system: Large stock of reserves outstanding, interest rate on reserves should determine overnight interest rate.
- Important interaction with the financial intermediary sector – banks in particular.

# Puzzle: Why do central bankers like NK models so much?

- Seemingly, these models have none of the detail that would allow us to answer questions about monetary policy:
  - No assets that matter.
  - No central bank balance sheet.
  - No financial intermediaries.
  - No physical currency or other means of payment.
- What questions might we want to answer?
  - What does an open market operation do?
  - Does it make a difference whether the central bank swaps reserves for short-maturity assets or long-maturity assets?.
  - How should a central bank maximize the efficiency of its operating system?
  - What's the role of central bank lending in a crisis?
  - With advances in payments technologies, should central banks be issuing other types of liabilities?

# This Paper

- Authors understand some of the deficiencies in baseline NK models, and build on basic NK model by adding role for assets and banking arrangements.
- Part of motivation is from an asset pricing perspective – evidence of “convenience yields” on short safe bonds, and that quantities matter for pricing.
- Models:
  - ① Two assets: Nominal bond (interpreted as CBDC) entering the utility function, and nominal bond that does not enter utility function.
  - ② Banking: Bank deposits enter the utility function; deposits backed by bonds (leverage constraint), interpreted as reserves.
    - ① Abundant reserves (floor system).
    - ② Scarce reserves (corridor), with interbank lending and borrowing driven by idiosyncratic shocks.
- Questions: Implications of policy rule for determinacy in a linearized system; interest rate pass-through?

- It's certainly important that people be working on more explicit models of central banking, financial intermediation, and means of payment – step in the right direction.
- Addresses important and interesting problems – effects of policy actions and rules, differences across operating procedures.
- Assets in the utility function. Neil Wallace was very convincing on this, I think – leads to trouble. Results depend on degree of complementarity between money and consumption. What's that mean?
  - Assets valued for future payoffs and what we can do with the asset – use it in exchange, as collateral. So, why not model that?

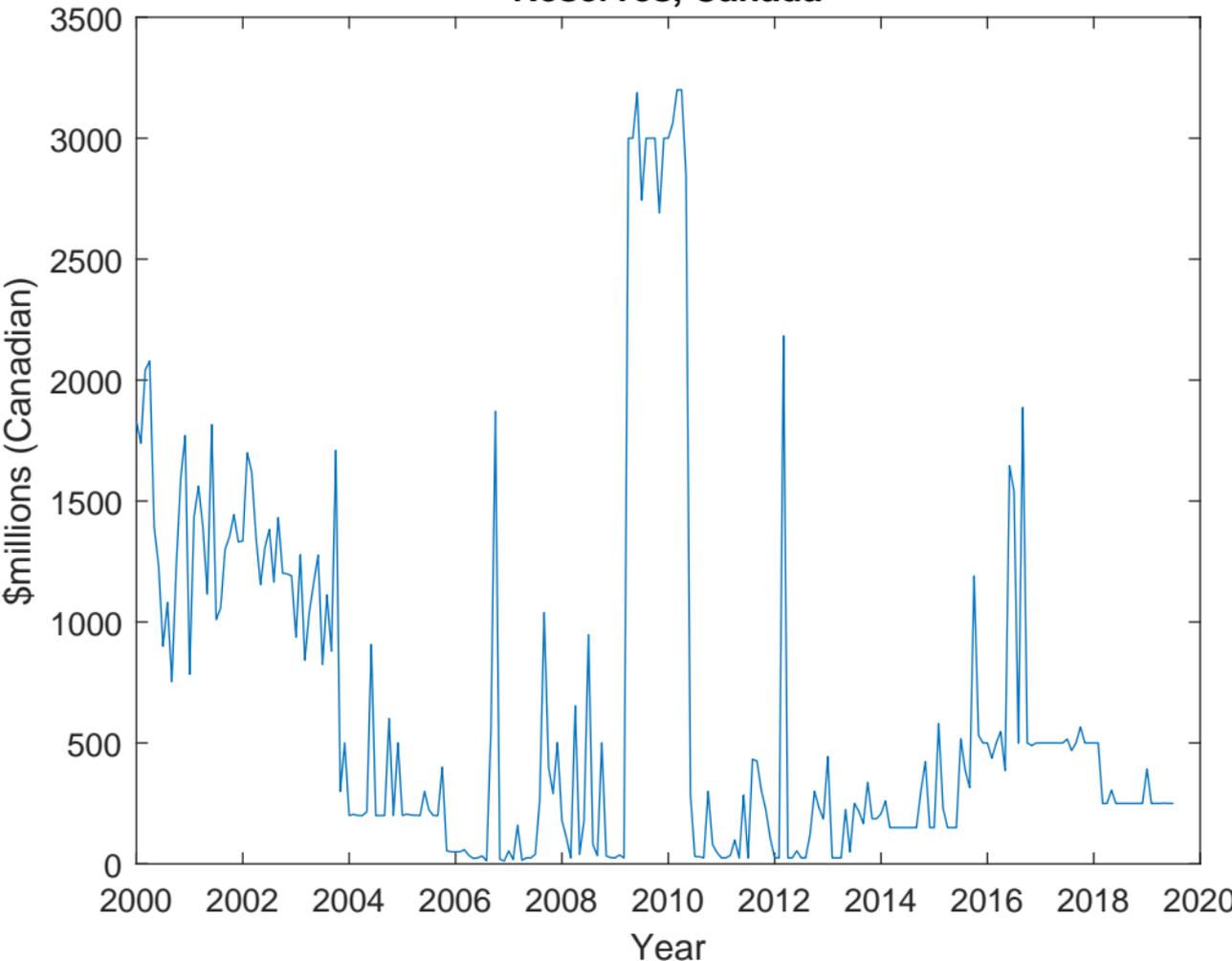
# More Complaints

- Where's the currency?
  - In normal times, central banking is about transforming government debt into currency – central bank is indeed a bank (narrow). In Canada currently, outstanding currency is essentially financing the whole Bank of Canada asset portfolio.
  - Woodford left monetary exchange out of his model. Why? Because that made things easy, and permitted focus on sticky price frictions. But the argument for doing so is very weak – if you actually model currency as a means of payment in a useful way, the “cashless” economy will look quite different.
- Are we interested in pass-through? Maybe not.
  - Think in terms of: (i) central bank goals (.e.g. inflation target); (ii) policy rule mapping state of the world to setting for some asset price or quantity (e.g. overnight rate); (iii) operating strategy.
  - Argument in the model seems to be that what we care about is the leverage policy has over the “shadow” nominal interest rate. Not sure why.

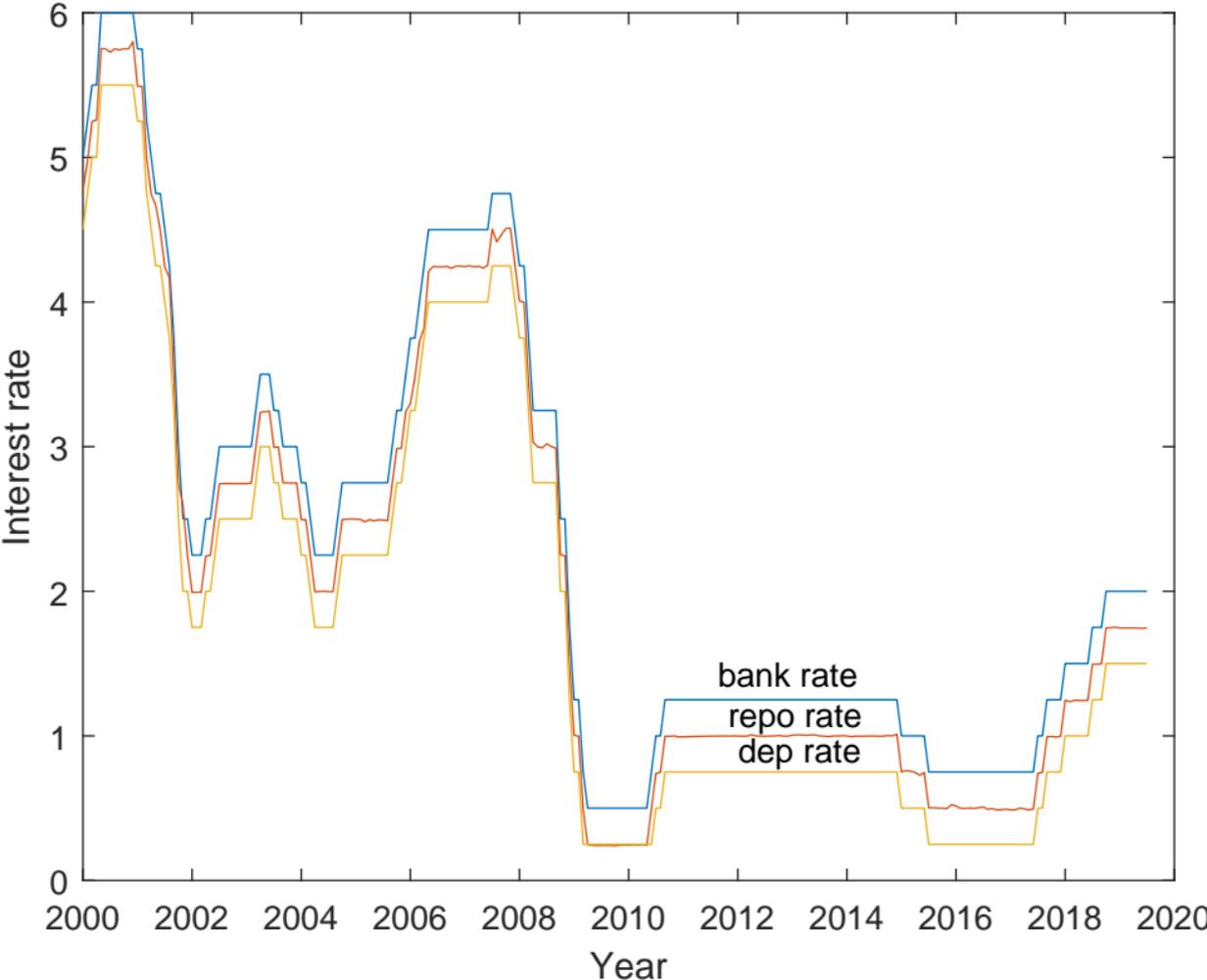
# More Complaints

- Local determinacy: Is it useful to analyze this? For example, in models where we know the global dynamics, Taylor rule gives local determinacy, but has poor global properties.
- To what extent are the models in the paper about monetary policy, rather than fiscal policy, or something else altogether?
  - Model 1: Asset looks like a government bond – enters the utility function, which in general gives a low real interest rate equilibrium, or safe asset shortage.
  - Model 2 (banking) with abundant reserves – reserves look like the bonds in Model 1. Balance sheet expansion isn't an asset swap – key question is whether swapping reserves for Treasuries is a good thing.
  - Model 2 (banking) with scarce reserves – heterogeneous banks, interbank rate  $>$  interest rate on reserves (collateral). Better to model this as zero-reserve-balance world, I think.

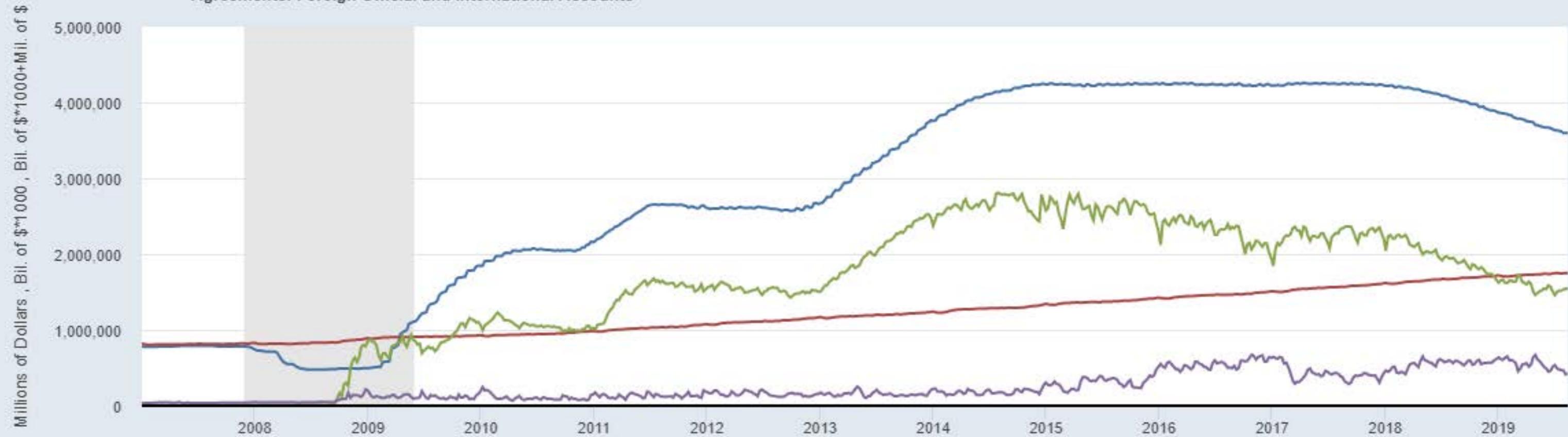
# Reserves, Canada



# Bank of Canada corridor



- Factors Supplying Reserve Balances: Securities Held Outright
- Factors Absorbing Reserve Funds: Currency in Circulation
- Reserve Balances with Federal Reserve Banks\*1000
- Deposits with Federal Reserve Banks, other than Reserve Balances: U.S. Treasury, General Account\*1000+Factors Absorbing Reserve Funds: Reverse Repurchase Agreements: Foreign Official and International Accounts

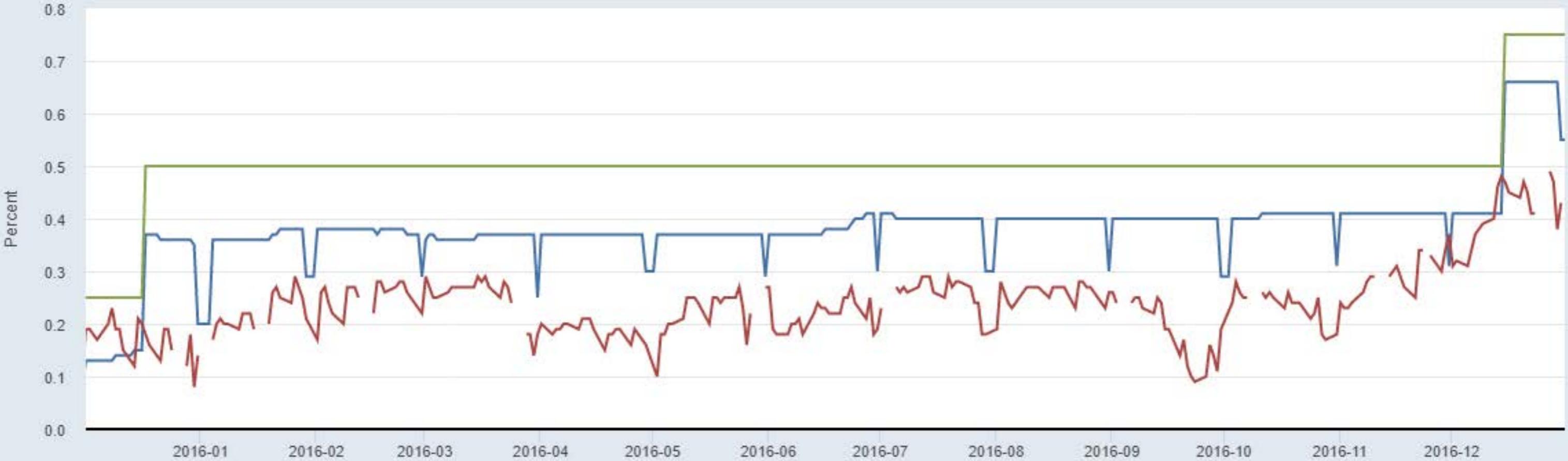


Shaded areas indicate U.S. recessions

Source: Board of Governors of the Federal Reserve System (US)

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- Effective Federal Funds Rate
- 4-Week Treasury Bill: Secondary Market Rate
- Interest Rate on Excess Reserves



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- Effective Federal Funds Rate
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Sources: Board of Governors, New York Fed

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# Conclusion

- Paper addresses important issues in monetary policy – how policy rules, banking, interbank lending, and floor/corridor matter.
- Model an improvement over baseline NK models in including asset quantities, and some elements of banking and central banking.
- Much more to do, though.
  - Capture complete array of central bank assets and liabilities, with explicit roles for all that stuff.
  - What is it about central bank financial intermediation that is better, or worse, than private financial intermediation?