

# Stop Believing in Reserves

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# Motivation

- Large literature on the passthrough of conventional monetary policy to banks and non-banks
  - E.g. Dreschler, Savov, and Schnabl 17, Xiao 20,
- Literature on unconventional monetary policy has primarily focused on asset prices
  - E.g. Krishnamurthy and Vissing-Jorgensen 11
- Until a recent and growing literature analyzes the effect of QE on bank balance sheets
  - Acharya and Rajan 22, Diamond, Jiang, and Ma 22, Lopez-Salido and Vissing-Jorgensen 22
- This paper: the first joint analysis of the effects of unconventional monetary policy on banks and non-banks

# Model Set-Up

- Households choose between deposits and MMF shares
- Banks have market power, MMFs do not → the deposits channel
- MMFs choose between repo with dealers and ON RRP with Fed
- Only MMFs supply repo to dealers
- Only dealers hold Treasuries bonds that the Fed does not hold

Figure 6: T-Accounts of the Central Bank, Banks, MMFs, Households and Dealers

Central Bank		Banks	
Bonds $b^{CB}$	Reserves $m_r$	Loans $\ell$	Bank deposits $d^b$
General goods $Px$	ON RRP $d^{ONRRP}$	Reserves $m_r$	
MMF		Households	
Repo $z^m$	MMF deposits $d^m$	Bank deposits $d^b$	Equity
ON RRP $d^{ONRRP}$		MMF deposits $d^m$	
Dealers			
Bonds $b^d$		Repo $z^d$	

# Main Results

- 1 When monetary policy rate  $\uparrow$ , depositors move to MMFs, who invest in ON RRP because the demand for repo did not increase.
- 2 When the Fed does QT, MMFs lend to repo markets instead of ON RRP because demand for repo financing of Treasuries increased.
- 3 To maintain control of repo rates. the Fed has to consider both reserve demand by banks and the capacity of MMFs to lend repo
- 4 The Fed can do more QT safely at higher interest rates because MMFs have more funding to lend out as repo at high interest rates

Overall, very insightful and relevant findings on the interaction between conventional and unconventional monetary policy at banks and non-banks!

# Comment 1: Repos only supplied by MMFs?

- An important assumptions in the model
  - ① MMFs are the sole suppliers of repo funding
- This is why the supply of repos goes up as interest rates increase and deposits flow to MMFs
- But, if deposit-taking banks can also supply repo funding
- Would it interest rates still matter for the Fed's ability to do QT ?  
Whether households are invested in deposits or MMFs, both can supply repos!

## Comment 1: Repos only supplied by MMFs?

- Further, for the result that repo rates can spike above IOER if MMFs cannot meet the demand for repo funding
- This channel would be much dampened if banks could supply repos
- My guess: if banks can frictionlessly arbitrage between IOER and the repo rate, the repo rate should not spike above the IOER

# Comment 1: Repos only supplied by MMFs?

- Of course, banks are not costlessly transforming deposits into repos
- But a very similar channel would be to allow deposit-funded banks to hold Treasuries because
  - Banks supply repos to dealers who buy Treasuries
  - ~ Banks directly buy Treasuries
    - 4.8% of Treasuries held by deposit-taking banks in 2023Q3
- The extent that deposit-taking banks supply repos and fund Treasuries using deposits matters a lot for the predictions → suggest to consider this margin in the model

## Comment 2: Demand for Repos and QT

- Another important assumption is that Treasuries not held at the Fed are held on balance sheets of dealers
- According to the FOF, primary dealers hold <1% of outstanding Treasuries only
- Some of this could be hedge funds who hold Treasuries backed by repos from dealers
- But, a large amount of Treasuries is not repo-funded, e.g.
  - Insurance companies + Pension funds: 4.0%
  - Mutual funds + ETFs: 2.8%
  - Foreign investors: 29%



## Comment 2: Demand for Repos and QT

- The effect of QT on repo demand and repo spikes depends how much, on the margin, Treasuries from the Fed are sold to repo-funded institutions
- This includes the deposit-funded banks mentioned in comment 1, who have fewer reserves after QT and more balance sheet space for Treasuries
- Not suggesting to model all Treasury-holding institutions one by one, but perhaps can incorporate an aggregate margin on how much the Fed's QT actually increases repo demand

## Comment 3: Repo Spikes and the Repo Facility

- The Fed has both the ON RRP Facility and the Repo Facility
- Can the Repo Facility provide a ceiling to repo rates and avoid repo rate spikes?
- Probably yes for dealers who have access
- Probably not for hedge funds who do not have access and who use bilateral repos
- Consider to include a discussion

# Conclusion

- Very nice framework unifying the passthrough of conventional and unconventional monetary policy to banks and non-banks!
- Thought-provoking with important policy implications!
- Some suggestions
  - ① Consider the margin of deposit-taking banks lending repo and/or directly funding Treasuries
  - ② Consider the margin of Treasuries held by non-repo-funded non-banks
  - ③ Discuss the effects of the Repo facility