The Market Events of Mid-September 2019

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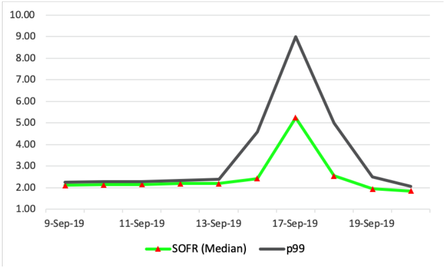
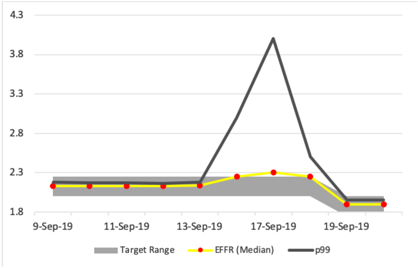
July 9, 2020

The Mid-September Funding Market Stress



Overnight Secured (repos backed by Treasuries)



Overnight Unsecured (fed funds)

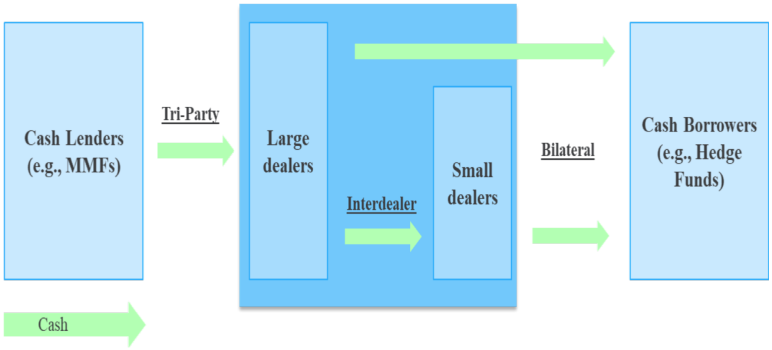
- Week of 9/16: secured and unsecured overnight funding rates spike up
- Tuesday 9/17: effective fed funds rate breaches target range

What could have caused this?

- Reserve scarcity
- Increase in intermediation costs of repo dealers

Treasury GC Repo Market

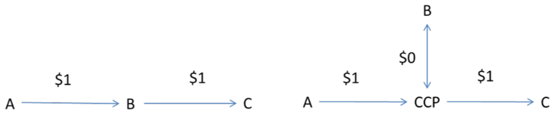
- Repos $\sim$ collateralized loans
  - Our focus: overnight repos backed by Treasury general collateral (GC)



- Ultimate cash lenders: money market funds (MMFs)
- Intermediaries: dealers (some are part of BHCs)
- Ultimate cash borrowers: hedge funds (HF) - very inelastic demand

Regulatory Costs of Repos and Repo CCP

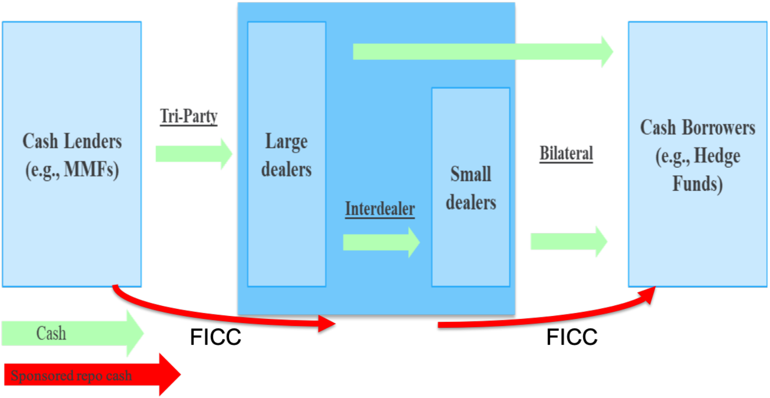
- Repo intermediation is more expensive under Basel III (leverage ratio)
- A repo (borrowing) and reverse repo (lending) can be netted if
  - same maturity and same counterparty
- Central clearing counterparty (CCP) can help



- Interdealer market is cleared by FICC serving as CCP
  - FICC: Fixed Income Clearing Corporation

The FICC Sponsored Repo Program

- FICC recently expanded its sponsored service (2017, 2019)
- FICC members sponsor Qualified Institutional Buyers (e.g., MMFs and HFs)
- Sponsored institutions lend/borrow in the interdealer market
- Greater balance-sheet netting for dealers $\rightarrow$ better prices for ultimate users

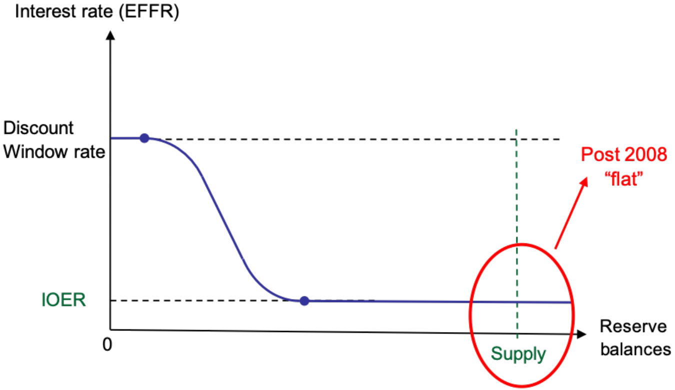


The Fed Funds Market

- Unsecured lending, mainly overnight
- Key players:
  - Domestic Depository Institutions (DIs)
  - US Branches of Foreign Banking Organization (FBOs)
  - Federal Home Loan Banks (FHLBs)
- Since 2008 crisis, most of the value lent: FHLBs to branches of FBOs
  - Only 5% is interbank
- Effective fed funds rate (EFFR): weighted-median rate on fed funds loans
  - Rate through which FOMC communicates the monetary policy stance

Reserve Demand Curve After 2008

- Aggregate reserves $\sim$ \$3 trillion (2014), less than 10% are required
- Federal Reserve allowed to pay interest on excess reserves (IOER)



- Reserve demand curve is flat around IOER (new monetary policy tool)

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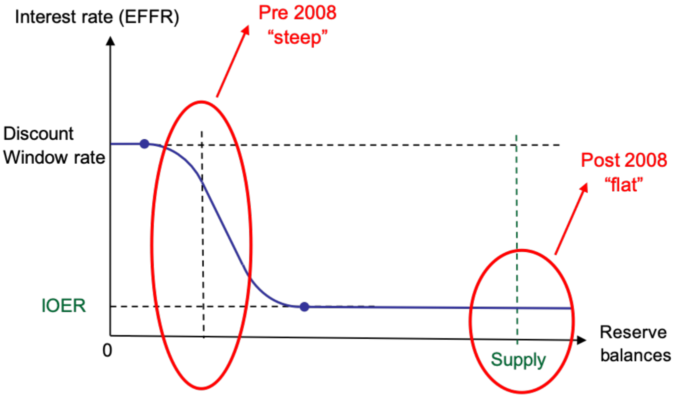
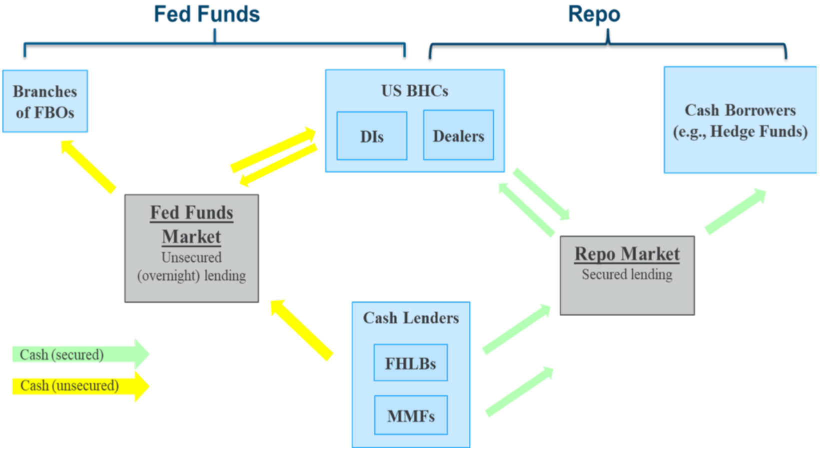


- Reserve demand curve is flat around IOER (new monetary policy tool)
- Pre 2008: much lower reserves ("scarce") $\rightarrow$ curve was steep

Links Between Fed Funds and Repo Markets

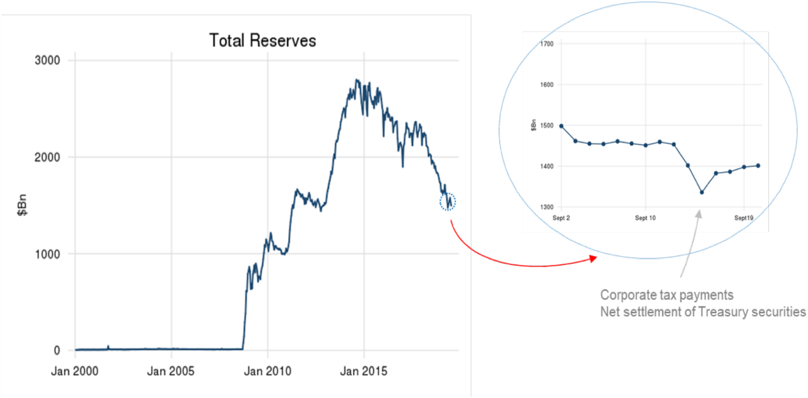


The Two (Anticipated) "Shocks"

- Corporate tax payment of around \$100 billion on Sept. 13-16
- Treasury settlements of around \$50 billion on Sept. 16
- Effect on fed funds market: drain aggregate reserves
  - Both shocks transfer balances from a bank's Fed account to the Treasury
- Effect on repo market: reduce funding supply & increase funding demand
  - Tax payments reduce the cash held by MMFs (repo lenders)
  - New Treasury issuance is financed by dealers via repo borrowing
- Magnitude of shocks: within historical standards

The Role of Reserve Scarcity

- Scarcity is relative to the banks' desired reserve holdings
- On 9/16 aggregate reserves decline by \$65 billion, dipping below \$1.4 trillion: <u>Lowest level since 2011</u>



The Effects of Reserve Scarcity

- Direct on fed funds rates:

  push some banks from "flat" to "steep" region of demand curve

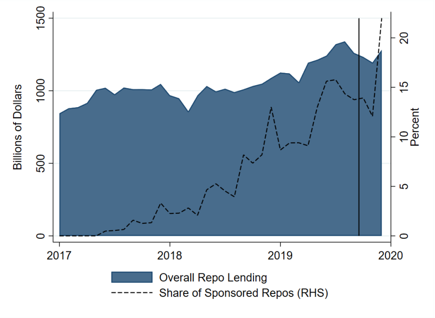
- Indirect on repo rates:

  prevent banks from redeploying excess cash to the repo market

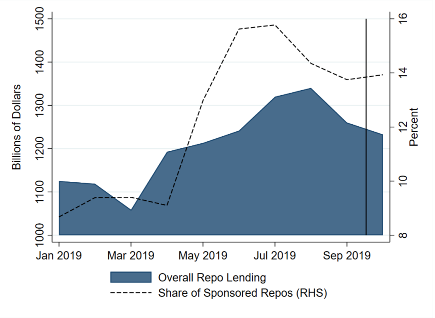
  - Recently some banks have been lending excess cash in the repo market
    - When repo rates are sufficiently high
    - When they have more reserves than they need

MMF Repo Lending & FICC Sponsored Program

- April-August: MMF increase repo lending by $160 billion
- 8/20-9/17: MMF cut repo lending by $60 billion
- Both expansion and contraction happen in FICC Sponsored Program



2017-2019



2019

The Role of US GSIBs and Intermediation Costs

- In response to MMF pullback, US GSIBs increase net repo lending
- Their intermediation cost increases
  - Loss of funding from sponsored repo $\rightarrow$ loss in netting benefits
- Intermediation cost would not increase if GSIBs redeployed surplus reserves
  - Possible amplification due to reserve scarcity
- Increase in intermediation costs can lead to increase in repo rates
  - Interdealer screens: source of pricing information in the Tri-Party market

From Repo Rates to Fed Funds Rates

- The link: FHLBs
  - main cash suppliers in fed funds market but also lenders in repo market
- Low fed funds volume on 9/16

  perhaps because FHLBs increase repo lending to take advantage of high rates
- Uncertainty may have also led FHLBs to delay lending on 9/17

  contributing to high fed funds rates early in the day
- Repo market trades earlier than fed funds market, typically before 9AM

The Fed's Response: Repo Operations & Asset Purchases

Repo market:

- 9/17-9/19: NY Fed announces overnight repo operation for next mornings
  - Mostly oversubscribed
- Repo & fed funds rates go back to normal by 9/20

Fed funds market:

- 10/11: FOMC announces plans to purchase T-bills at least into Q2 2020
  - Goal: maintain aggregate reserves at or above early-September level
  - Jan 2020: aggregate reserves above \$1.7 trillion
  - Technical adjustment, not QE

Recap & Other Amplifying Factors

Factors that can explain mid-September event:

- Reserve scarcity
- Rise in intermediation cost of repo dealers

Other amplifying factors:

- Demand for cash in the repo market is very inelastic
- Uncertainty about causes of rate increases $\rightarrow$ cash hoarding
- Cash suppliers in repo market may not always behave competitively
- Dealers facing tighter regulatory constraints lend at higher spreads
- Internal risk-management frameworks may prevent banks from reacting fast