U.S. Banks and Global Liquidity

Ricardo Correa*, Wenxin Du**, and Gordon Liao*

*Federal Reserve Board, **Chicago Booth and NBER

ECB Conference on Money Markets

November 23-24, 2020

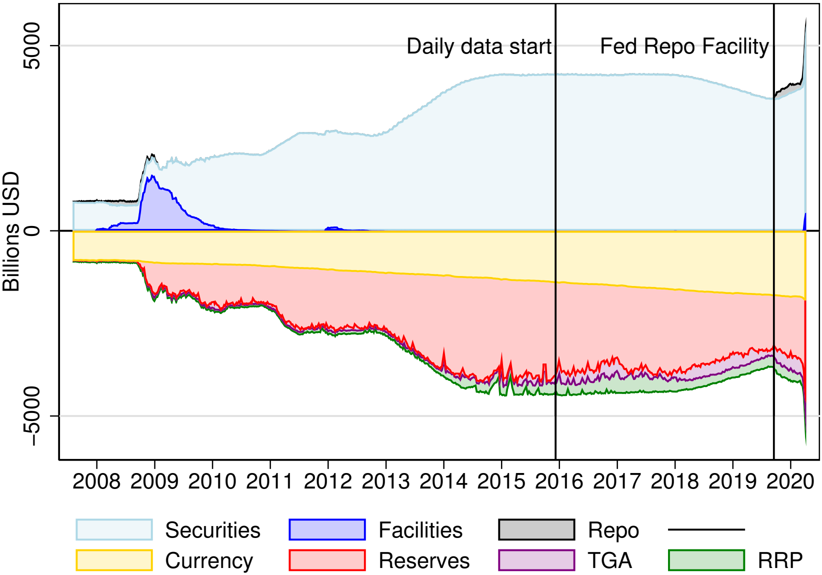
Overview

- New U.S. monetary policy and regulatory environments post-GFC:
  - QE programs create bank reserves.
  - Leverage ratio requirements are introduced for foreign banks, become more binding for U.S. banks.
- Bank reserves play a key role in supporting short-term liquidity provision.
  - **"Reserve-draining intermediation"**: Global banks run down reserves to finance additional liquidity provision (in repo and FX swap markets) during funding shortages.
- Banks face constraints in draining reserves. When reserves become scarce, dollar funding markets get impaired.
- Implications for monetary policy: ample reserves are necessary for implementing interest rate policy. Large Fed balance sheets are the "new normal."

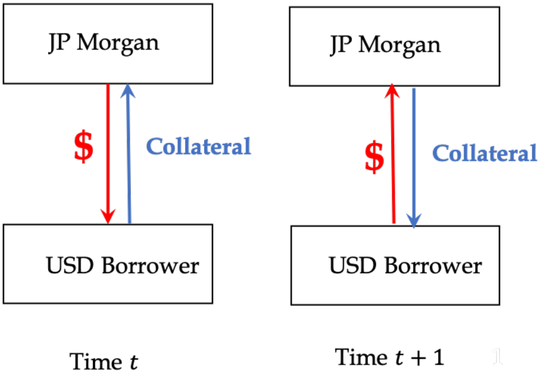
Data and Sample

- FR 2052a: regulatory filings for the Basel III Liquidity Coverage Ratio
  - A detailed daily snapshot of individual banks' asset inflows and liability outflows by currency on a consolidated basis, as well as by material subsidiary.
  - We manually map inflows and outflows in the FR 2052a to asset and liability line items in the FR Y-9C *Consolidated Financial Statements for Holding Companies*. 2052a-Y9c Comparison
- Main sample period: December 2015 to Sept 2019 (extended to May 2020)
- Six banks (GSIBs): Bank of America, Citi, Goldman Sachs, JP Morgan, Morgan Stanley, Wells Fargo

Evolution of the Fed Balance Sheet

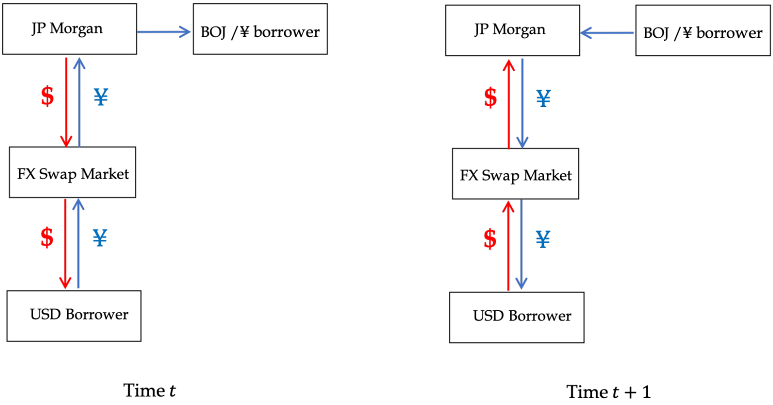


Dollar Lending in the **Repo Market**



- Measurement: $ reverse repo (RRP) position from the U.S. GSIBs' balance sheet.

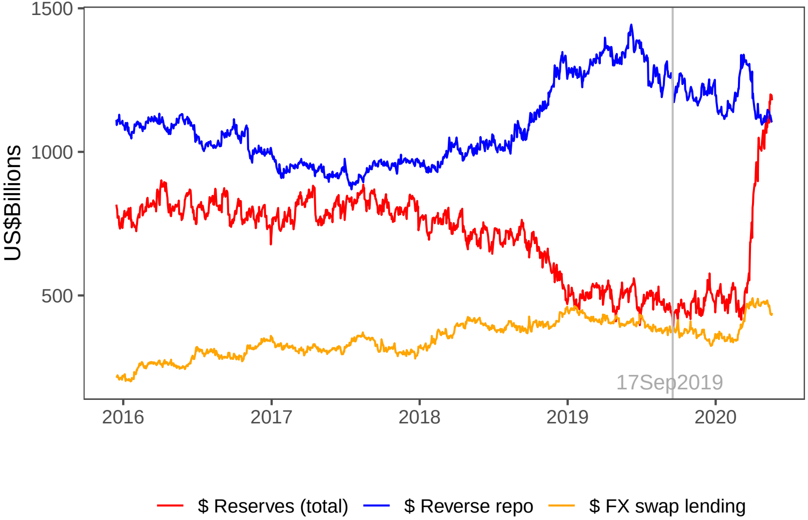
Dollar Lending in the **FX Swap Market**



- Empirical Challenge: FX swap dollar lending is off-balance-sheet. Only the JPY deposit/on-lending is observed.

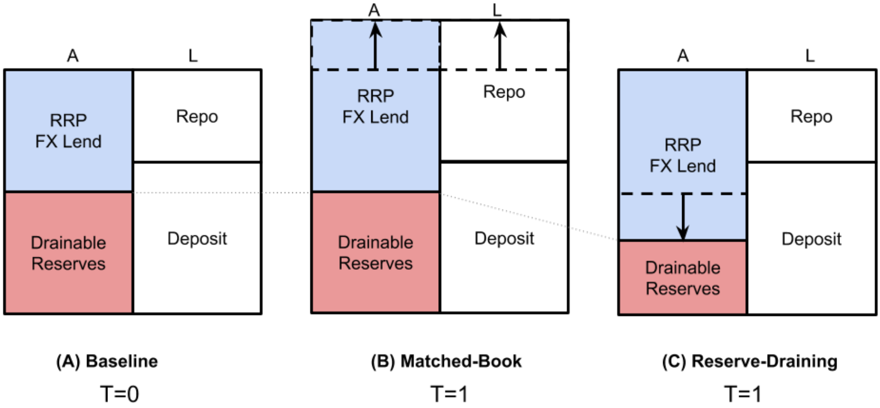
  Proxy for Short-term FX Swap Lending
  $=$ *Foreign Currency Excess Reserves*
  $+$*Foreign Currency Reverse Repos* $-$ *Foreign Currency Repos.*

Short-term Dollar Liquidity Provision

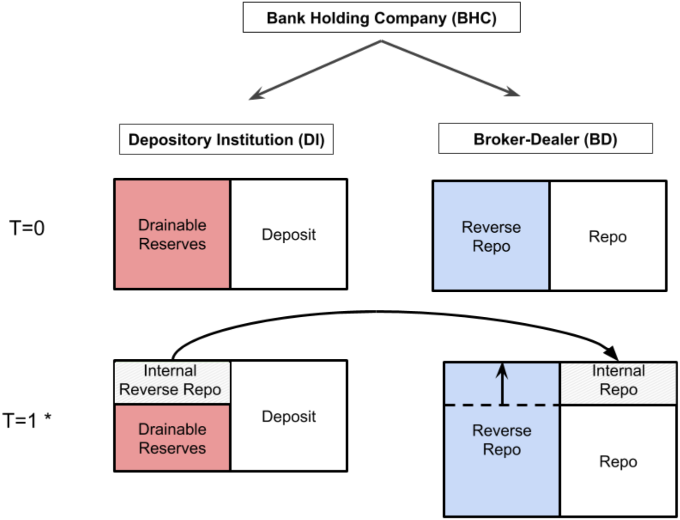


How is the short-term dollar lending financed?

- Two types of intermediation: **Matched-book** vs. **Reserve-draining**



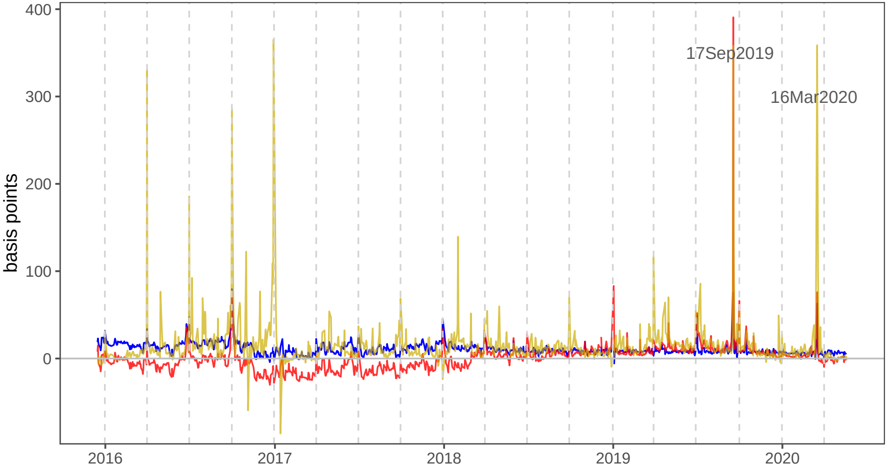
Intra-bank Transfer for Reserve-Draining Intermediation



* BHC and DI balance sheet size unchanged
BD balance sheet expands at T=1

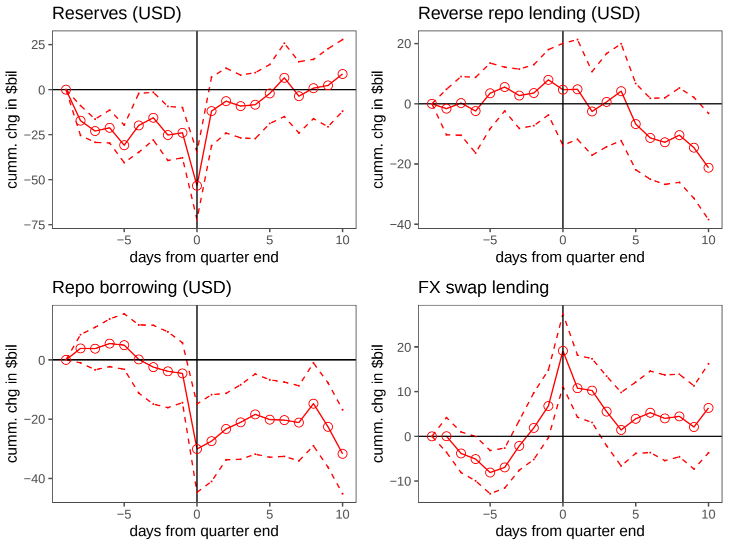
Intermediation Spread

- GCF-Triparty repo spread: overnight repo lending financed by repo borrowing
- GCF-IOR spread: overnight repo lending financed by draining reserves
- FX IOR basis: overnight FX-swap dollar lending financed by reserves; o/n CIP deviation between interests on excess reserves between the Fed and ECB



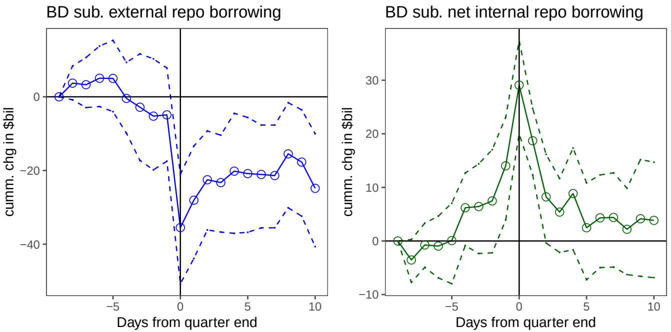
U.S. GSIBs Dollar Intermediation on Quarter-ends

- U.S. G-SIBs maintain $ reverse repos, increase FX swap lending and reduces $ repo borrowing. Reserves are used to finance dollar liquidity provision.



Quarter-end: BD and non-BD subsidiaries

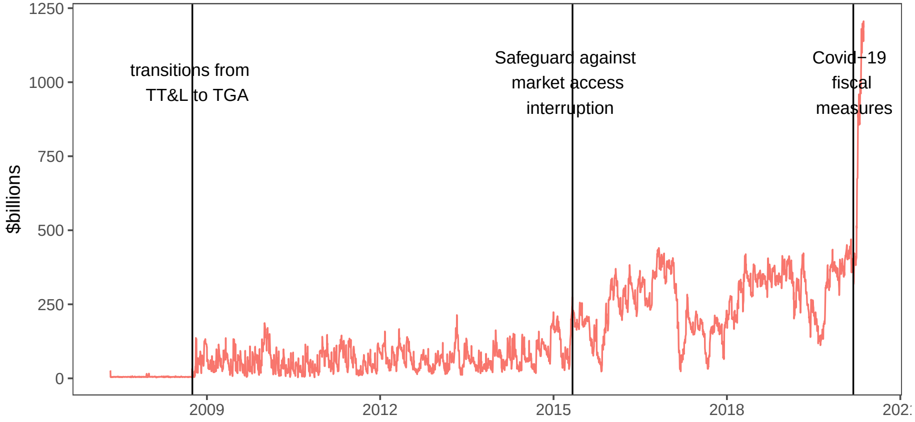
- Broker-dealer (BD) subsidiaries reduce their external repo borrowing and increase their internal borrowing from commercial bank subsidiaries that drain reserves.
  - Liquidity sharing between traditional banking and shadow banking



- Constraints on intra-firm liquidity sharing are frictions to funding markets
  - e.g. Resolution planning rules

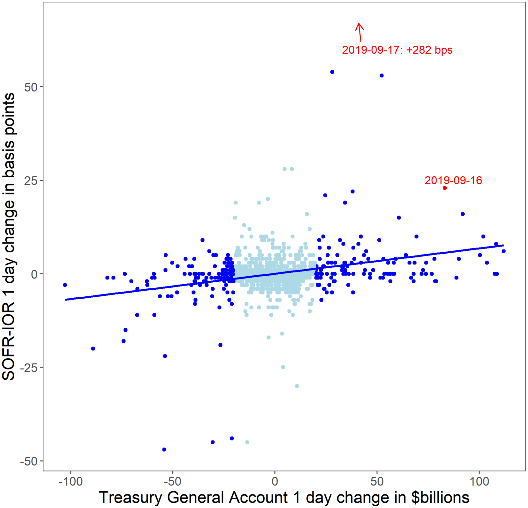
Fluctuations in the TGA Balance

- The U.S. Treasury holds cash at the Fed through the Treasury General Account (TGA) starting in 2009.
- Large swings in the Treasury TGA account starting in 2015.
- A higher TGA balance implies a lower cash balance for the entire banking system, i.e. scarcer dollar liquidity.



TGA fluctuations and the Repo Spread

- TGA is the checking account of the U.S. Treasury held at the Fed.
- An increase in TGA reduces overall cash for banks, raising the repo spread.



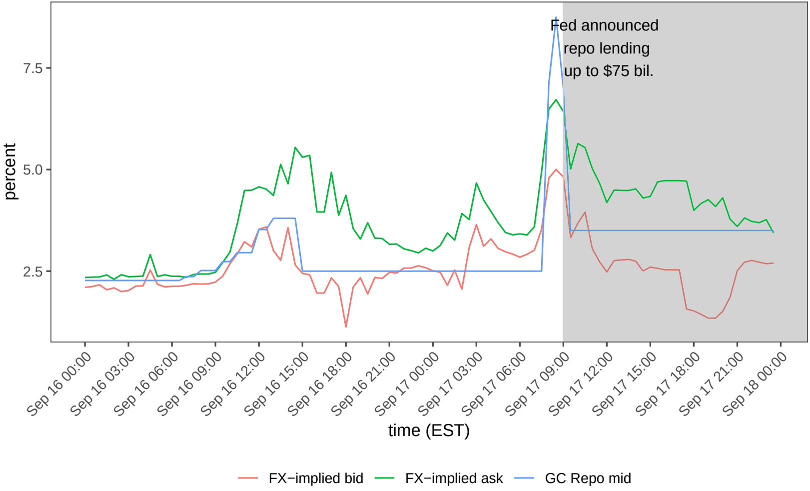
TGA fluctuations and Dollar Liquidity Provision

	$\Delta Reserves_t$	ΔRRP_t	ΔRP_t	$\Delta NRRP_t$	$\Delta FX\ Lend_t$	$\Delta Deposit_t$
ΔTGA_t	-0.289***	-0.0234	-0.0951***	0.0717***	0.0367**	-0.124***
t-stat	[-7.23]	[-0.86]	[-3.92]	[3.09]	[2.55]	[-3.01]
R^2	0.219	0.004	0.064	0.043	0.033	0.055

- US GSIBs provide dollar liquidity when dollar funding becomes scarcer by
  - draining reserves to substitute repo financing
  - maintaining reverse repo
  - lending more via FX swap

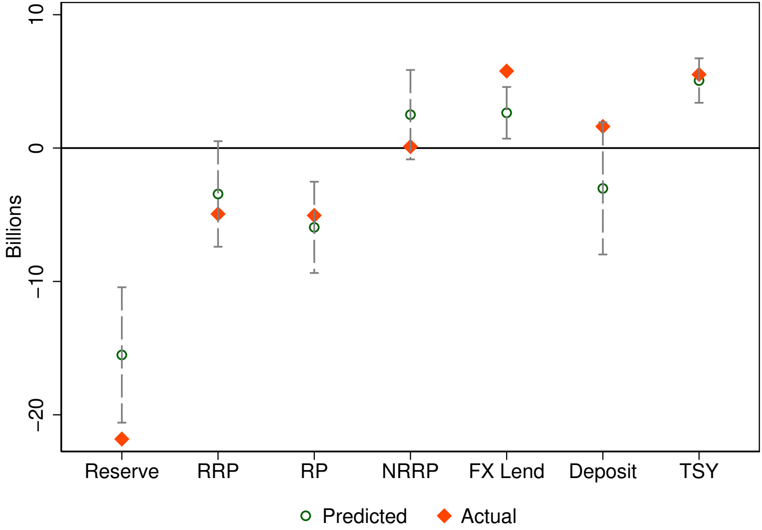
September 2019 Funding Market

- September 16, 2019
  - TGA balance increased by $83 billion on the day
  - Repo and FX swap implied dollar funding rates increased in lockstep



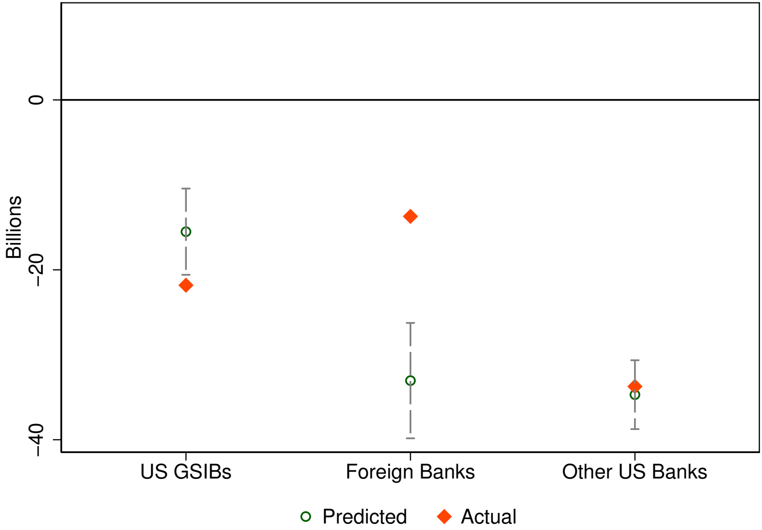
Predicted and actual one-day change on Sept 16, 2019

- U.S. banks' response was in line with predicted change based on TGA increase



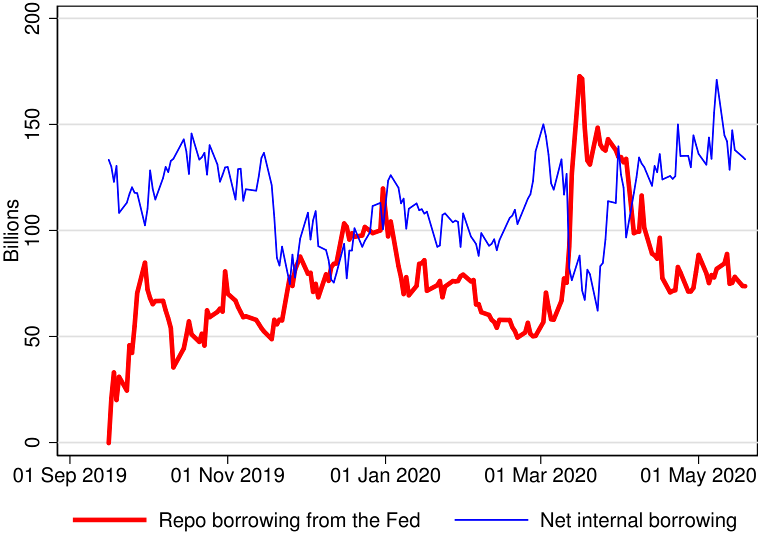
Predicted and actual one-day change in reserves

- Foreign banks reduced reserves less than expected ▸ Reserve Distribution



BD take-up at the Fed repo facility

- For BDs, liquidity from the Fed and internal repo borrowing from commercial banks (financed via reserve draining) are substitutes.



Conclusion

- Ample reserves are key to well-functioning short-term funding markets.
- Internal transfers between BD and non-BD subsidiaries within the BHC are crucial.
  - Synergy between traditional banking and shadow banking
- A large Fed balance sheet may be necessary to maintain market functioning, even after rates move away from the ZLB.