Discussions of

The Market Events of Mid-September 2019
by Gara Afonso, Marco Cipriani, Adam Copeland, Anna Kovner, Gabriele La Spada, and Antoine Martin

and

U.S. Banks and Global Liquidity
by Ricardo Correa, Wenxin Du, and Gordon Liao.

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This discussion draws from work with Adam Copeland and David Yilin Yang. Views expressed do not necessarily reflect those of the Federal Reserve Bank of New York or the Federal Reserve System. Research assistance by Renhao Jiang is gratefully acknowledged.
Summary Comments

1. ACCKLM and CDL provide new facts and concepts that significantly deepen our understanding of the key roles in USD funding markets of:
   - the supply of central bank deposits (reserves).
   - the shadow cost of large dealer-bank balance-sheet space.

2. These are deep forensic analyses of institutional structures ("plumbing") and data, including use by CDL of a key new Fed data set, FR2052a.

3. A central focus of both papers is the USD funding market crunch of September 16-19, 2019, including jumps in
   - covered-interest parity violations [CDL].
   - the fed funds rate [ACCKLM].
   - violations of the “arbitrage equivalence” of IOER and Treasury repo rates [ACCKLM, CDL].

4. Neither paper provides a convincing explanation of how moderate and predictable incremental effects could cause such sudden and large jumps in arbitrage rate violations.
Repo rates spike relative to IOER

Figure: Copeland, Duffie, and Yang (2020). Data: FRBNY and Tradition.
Numerous repo-rate spikes since mid 2018

Figure: Copeland, Duffie, and Yang (2020). With truncation of the spike on September 17, 2019. Data: FRBNY and Tradition.
## Days on which repo rates spiked

<table>
<thead>
<tr>
<th>Date</th>
<th>SOFR-IOER</th>
<th>VWATR-IOER</th>
<th>Dlr. balances ($ billions)</th>
<th>Tsy. Issuance ($ billions)</th>
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<tbody>
<tr>
<td>9/17/19</td>
<td>315</td>
<td>354</td>
<td>465</td>
<td>90</td>
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<td>75</td>
<td>82</td>
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<td>9/30/19</td>
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<td>478</td>
<td>138</td>
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<td>589</td>
<td>96</td>
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<td>5</td>
<td>33</td>
<td>758</td>
<td>196</td>
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</tbody>
</table>

Reserve balances were “too low” by mid 2018

Figure: Copeland, Duffie, Yang (2020). Data: Fedwire Funds Service, FRED. Background: Avalos, Ehlers, and Eren (2019)
It takes a lot of reserves to saturate the repo market

Figure: Copeland, Duffie, Yang (2020). Data: Fedwire Funds Service, FRBNY, Tradition.
• “First, the Fed should implement a standing fixed-rate repo facility from which a set of counterparties (including banks) can borrow at a rate modestly above the rate of interest the Fed pays on excess reserves (IOER).”

• “The minimum level of reserves is conceptually murky, impossible to estimate, and likely to vary over time. The best approach is to steer well clear of it, especially since maintaining a higher level of reserves as a buffer has no meaningful cost.”

• “It is important for the Fed to control the repo rate, and the FOMC directive should explicitly state that. In fact, the Fed should consider even going as far as adopting the repo rate, as measured by the secured overnight financing rate (SOFR), as the targeted policy instrument.”
Some of the key contributions of these two papers

1. Abundancy of reserves is crucial for intermediation of US dollar funding markets. [ACCKLM, CDL]

2. Evidence that when aggregate reserves get low enough, frictional rate distortions can spike. [ACCKLM, CDL]


4. On September 16-19, 2019, a low supply of reserves, frictions in the mobility of reserves, and several on-the-day reserves-draining factors contributed to big spikes in repo rates and covered-interest-parity violations. [ACCKLM, CDL]
   - Treasury General Account increases.
   - Treasury security issuances.
   - Corporate tax payments.

5. A reduction in money-fund use of sponsored repo exacerbated the September crunch by increasing the balance-sheet intensity of repo intermediation. [ACCKLM]
A reduced-form empirical model will not explain this spike!

Figure: Copeland, Duffie, Yang (2020). Data: Fedwire Funds Service, FRBNY.
Yang (2020): When reserves get low enough, rates must spike.

As reserves went down, their distribution across dealers flattened

Figure: Copeland, Duffie, Yang (2020). Data: Fedwire Funds Service.
When reserves went up, intra-day payments were made earlier.

Figure: A variant of a figure from Copeland, Molloy, and Tarascina, Federal Reserve Bank of New York, February 25, 2019, based on data provided by the authors.
When reserves went down, peak daylight overdrafts went up

Figure: Post-crisis quarterly peak daylight overdrafts, normalized by quarterly aggregate payment volume, regressed onto excess reserves, also normalized by quarterly aggregate payment volume. $R^2 = 0.80$. Data source: Federal Reserve.
Intraday interdealer volumes on Tradition

**Figure:** Average and standard deviation, across normal days and across crunch days, of total trading volume in each 20-minute time window. Source: Copeland, Duffie, and Yang (2020). Data: Tradition
Intraday interdealer repo rate spreads and volatility

**Figure:** Copeland, Duffie, Yang (2020). Data: Tradition.
SOFR was far from the fed funds target during the COVID19 crisis

Figure: Federal Reserve Bank of New York, Lorie Logan speech, April 14, 2020.