Mutual Fund Fragility, Dealer Liquidity Provisions, and the Pricing of Municipal Bonds

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Summary

Impact of MF fragility on munis during the crisis (Mar 9–20)

- MF redemptions destabilized the muni market in Mar 2020
  - bond MF liquidity mismatch leads to runs (Chen-Goldstein-Jiang, 2010; Goldstein-Jiang-Ng, 2017; Zeng, 2017)
- Munis held by MFs had 29% higher trading volume than other bonds
- Among munis held by MFs
  - higher yield spreads for bonds held by MFs with larger outflows
  - higher volume for munis held by MFs with larger redemptions
- Results are quite robust: all work with **issuer-date** FEs

Dealers' behavior

- About 2 weeks before large MF outflows on Mar 9
    - dealers accumulated **more** munis held by MFs than other bonds
    - authors' speculation: MFs building cash reserves in expectation
- During the crisis (Mar 9–Mar 20)
    - dealers were **net sellers** of munis held by MFs
    - sold on net $20,000 more per bond-day munis held by MFs
- After muni fund flows stabilized (May 1–Jul 17)
    - dealer inventories in munis held by MFs continue to decline
    - sold on avg $267,000 more per bond-day munis held by MFs

This “fragility risk” in munis is priced post-crisis (May 1–Jul 17)

- **Post-crisis**, run risk posed by MF ownership is priced
  - about 33 bps yield premium on munis held by MFs post-crisis
  - the premium was only 6 bps pre-crisis in Jan and Feb, 2020
  - no difference in yields during crisis
- This is unlike what happened in corporate bonds
- Mechanism for post-crisis yield differential
  - Potential run risk (use 3 measures in Falato-Goldstein-Hortaçsu, 2021) ✓
  - Selection (bond type) ✗
  - Reaching for yield by muni MFs ✗

Facts: Munis vs. coporate bonds in Mar-Apr 2020

Munis vs. corporate bonds in Spring 2020

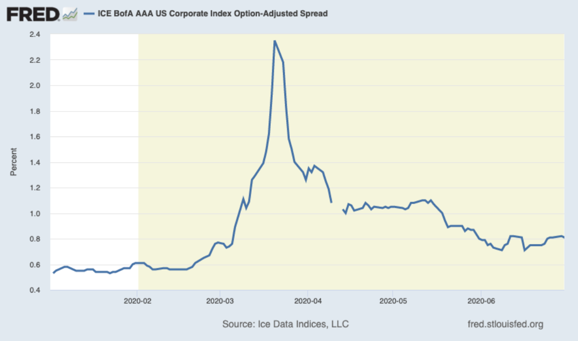
- Dealers' behavior
  - very different in munis from corporate bonds
- Authors' explanation
  - lack of a secondary market facility for munis
- Fed directly and indirectly intervened in both markets
  - **PDCF**: PDs could borrow against both muni and corp bond collateral
  - **P/SMCCF**: Fed buying corp bonds in primary and secondary markets
  - **MLF**: Fed lending in primary muni market only (muni market is very fragmented)
- Fed would've deployed a secondary market facility for munis if
  - "MMLF and MLF had been insufficient to stabilize the market."

    (Kent Hiteshew interview with Bloomberg, Apr, 2021)

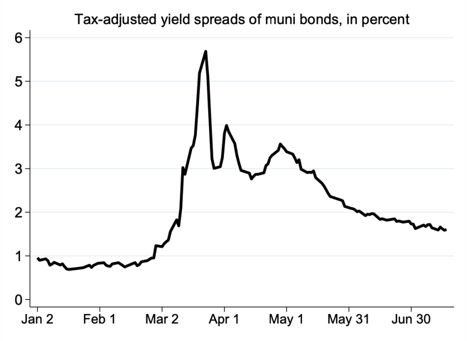
Municipal Liquidity Facility

- MLF
  - announced on Apr 9, 2020
  - cities with pop $>$ 1m; counties with pop $>$ 2m
  - $500 billion in size
  - meant as a backstop: rates $>$ market rate in normal times
  - eligible issuers expanded on Apr 27: cities $>$ 250k; counties $>$ 500k
  - ended on Dec 31, 2020
  - made only four loans to two issuers!
- *"The immediate purpose of the MLF is to enhance the liquidity of the* ***primary short-term municipal securities*** *market . . ."*

Yield spreads

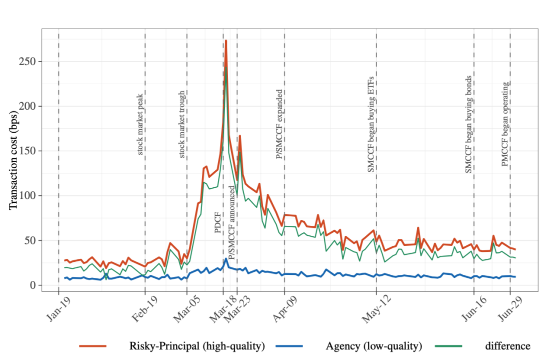


AAA-rated corporate bonds

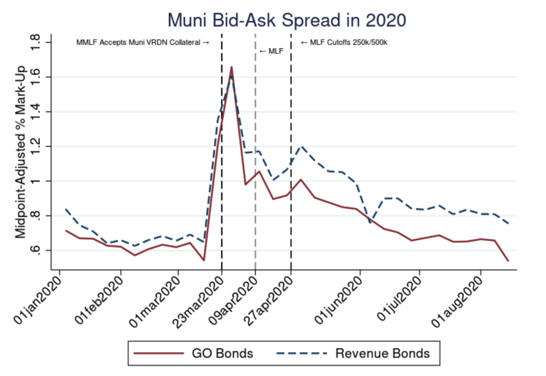


Munis (Li-O'Hara-Zhou, 2021)

Transaction costs

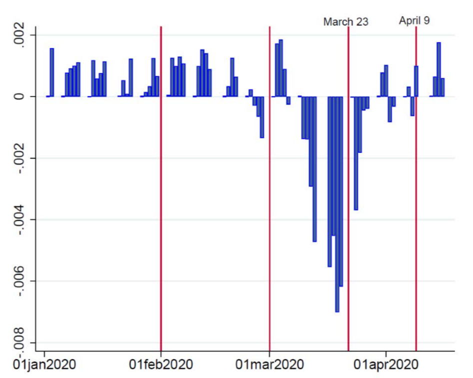


Corporate bonds (Kargar et al., 2021)

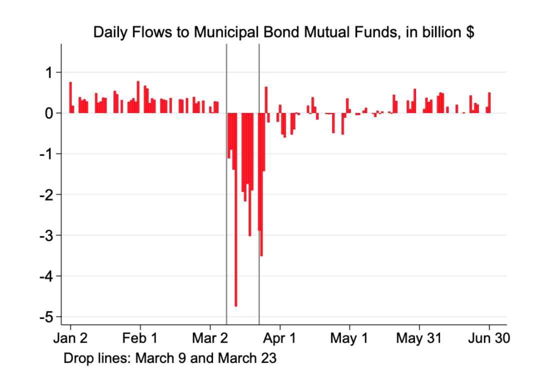


Munis (Haughwout-Hyman-Shachar, 2021)

MF flows

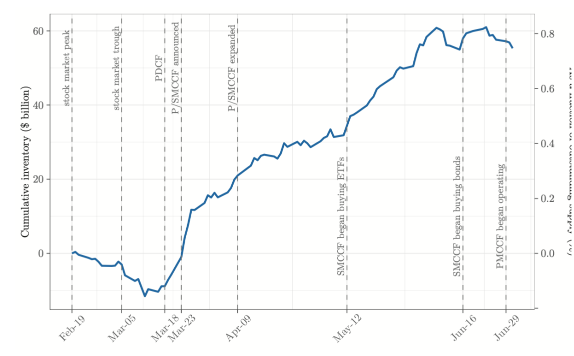


Corporate bonds (Falato-Goldstein-Hortaçsu, 2021)

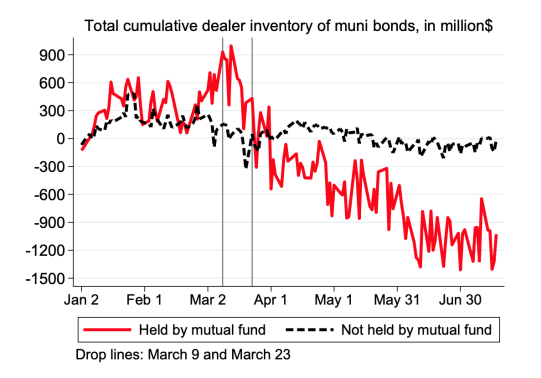


Munis (Li-O'Hara-Zhou, 2021)

Dealer inventories: very different!



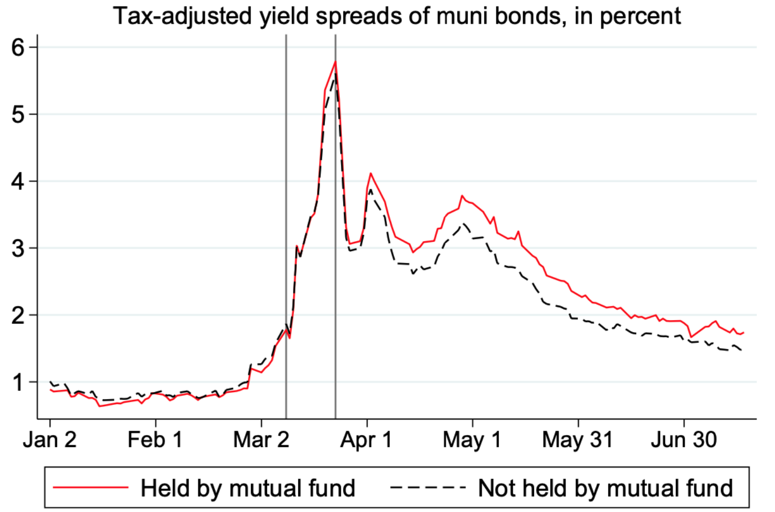
Corporate bonds (Kargar et al., 2021)



Munis (Li-O'Hara-Zhou, 2021)

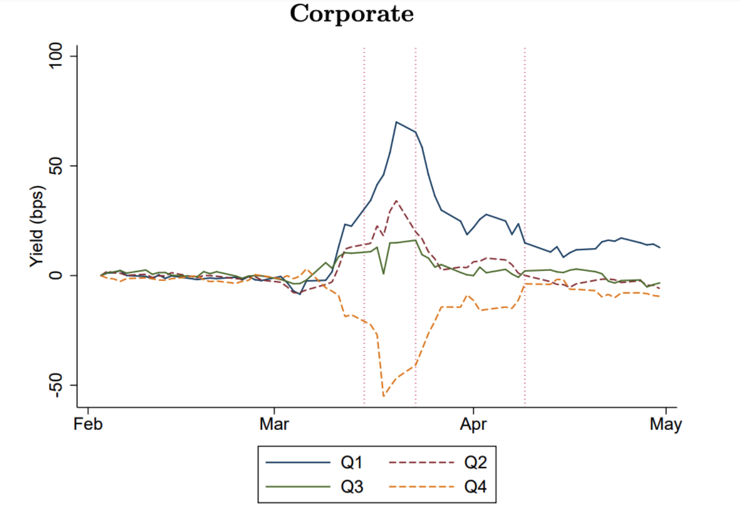
Comments and suggestions

Comment 1: No fire sale premium for munis during crisis



Drop lines: March 9 and March 23

Large fire sale premium for corporate bonds during crisis

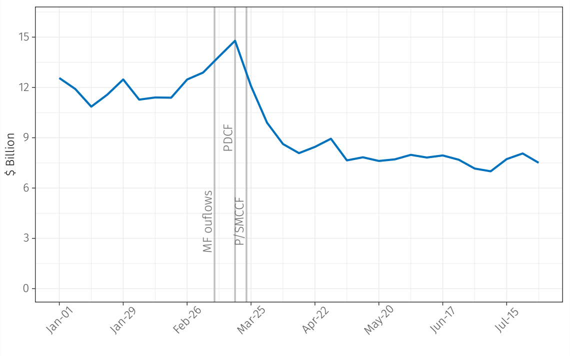


Q1: bonds with highest fraction of MF ownership (Ma-Xiao-Zeng, 2021)

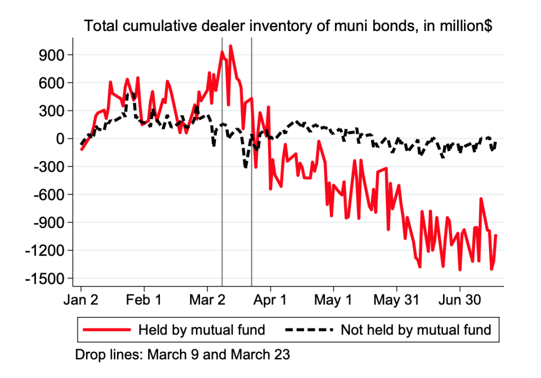
Is run risk the whole story?

- "Fire sale premium" for munis appears only post-crisis
- Muni MF redemptions largely reversed in early Apr 2020
- Run risk arguably higher **during the crisis** when everyone is selling
  - why do we see run risk priced only post-crisis?
- Very different picture in corporate bonds
  - puzzling!
  - run risk does not seem to be the entire story

Comment 2: Which dealers reduced inventories in munis?

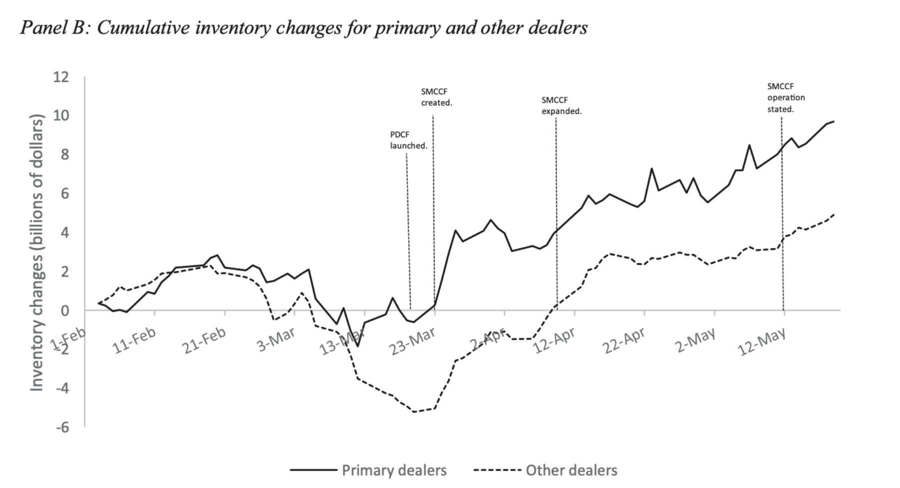


Primary dealers (NY Fed Primay Dealer Statistics)



All dealers (Li-O'Hara-Zhou, 2021)

Corporate bond inventories: PD vs. other dealers



Source: O'Hara-Zhou (2021)

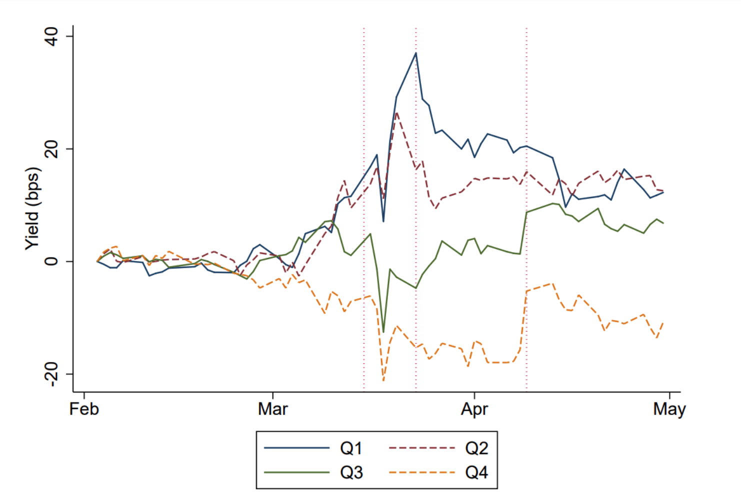
Comment 2: Which dealers reduced inventories in munis?

- Muni inventories of PDs stabilized late Mar 2020
- Non-PD dealers must've sold post-crisis?
  - in contrast to corp bonds where all dealers accumulated inventories
- Dealer networks in the muni market (Li-Schürhoff, 2019)
  - core-periphery structure
  - core dealers: 10–30; periphery dealers: $>$ 2,000
- Are PDs in the periphery of the muni dealer network?
- Is the dealer network fundamentally different for corp bonds?
  - network is also core-periphery for corp bonds (Di Maggio-Kermani-Song, 2017)

Comment 3: pecking order of liquidity in munis during crisis?

- Corp bond MFs followed a pecking order of liquidation (Ma-Xiao-Zeng, 2020)
    - first sold their most liquid assets before more illiquid ones
    - bonds with higher liquidations ranks in MFs had larger drops in prices
    - a higher liquidation rank indicates a more liquid bond within a MF.
- An indicator of the "dash-for-cash" (Haddad-Moreira-Muir, 2021; Kargar et al., 2021)
- Do we see the same pecking order in muni MFs?

Pecking order of liquidity for corporate bonds during crisis



Q1: bonds in the top quartile of liquidation rank (Ma-Xiao-Zeng, 2021)

Summary

- Enjoyed reading the paper!
- Evidence that MF redemptions adversely impacted the muni market
- Dealers behaved differently for munis vs. corp bonds
- Comments
    - dealer inventories in munis vs. corp bonds post-crisis?
    - fire sale premium during crisis for munis held by MFs?
    - PDs vs. other dealers?
    - Pecking order of liquidity in munis?

Thanks for the opportunity to discuss!