Panel on Money Market and Investment Fund Liquidity

David Scharfstein

Harvard Business School

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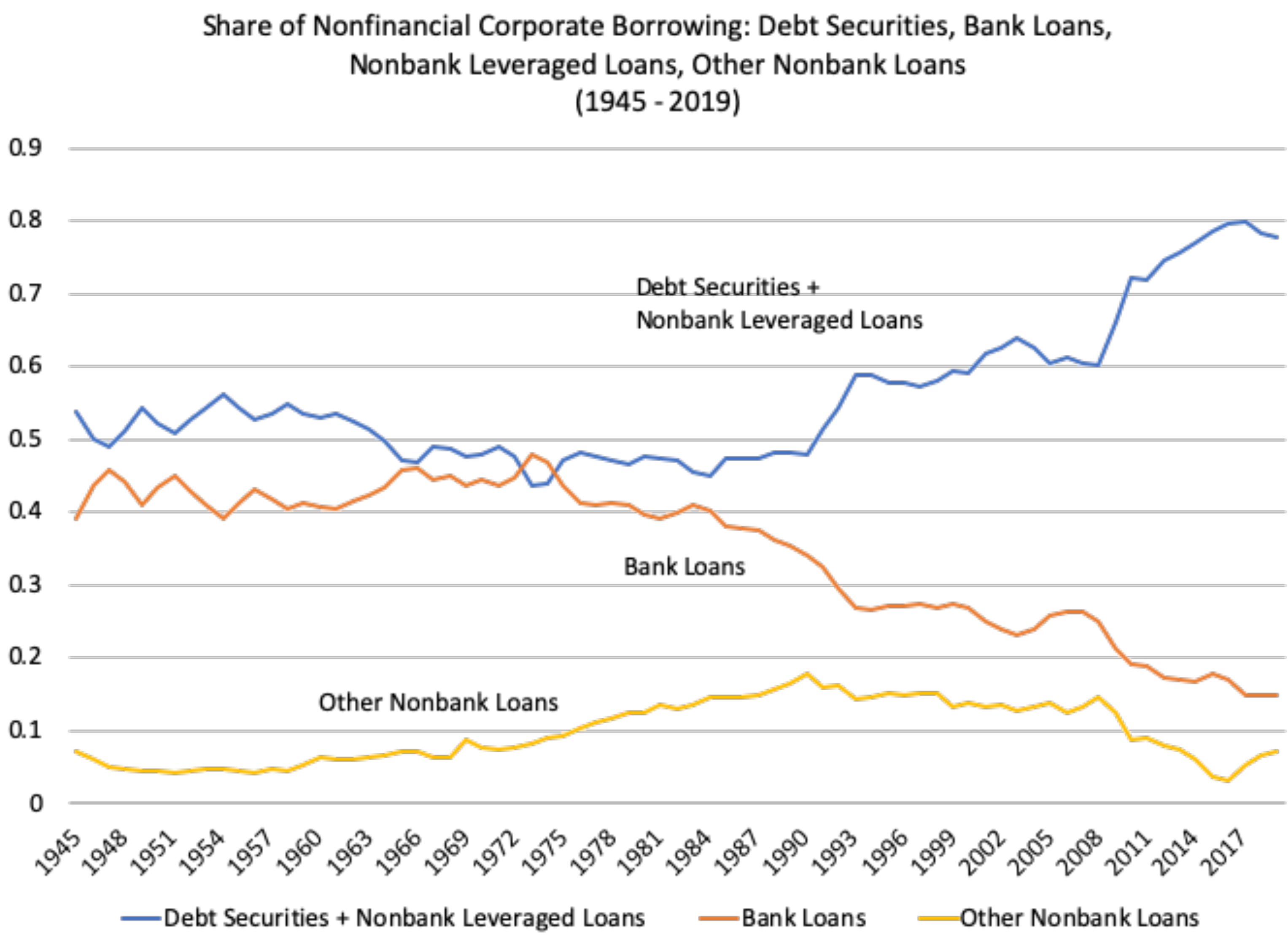
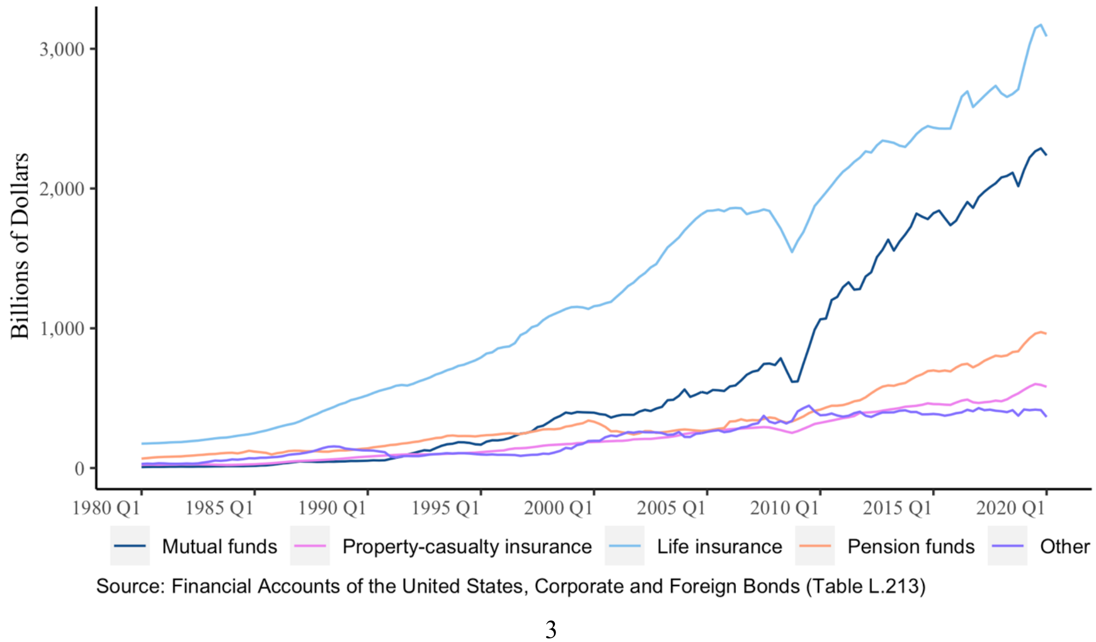
Market-Based Corporate Lending



Data Sources: Financial Accounts of the United States – Z.1; Nonbank leveraged loans estimated from OFR FRAC Working Group: Leveraged Loans & CLOs, July 11, 2019 using data from S&P Global Market Intelligence.

Growth of Corporate Bond Mutual Funds



Graph taken from J. Nellie Liang, “Corporate Bond Market Dysfunction During Covid-19 and Lessons from the Fed’s Response,” Hutchins Center Working Paper, Oct. 2020

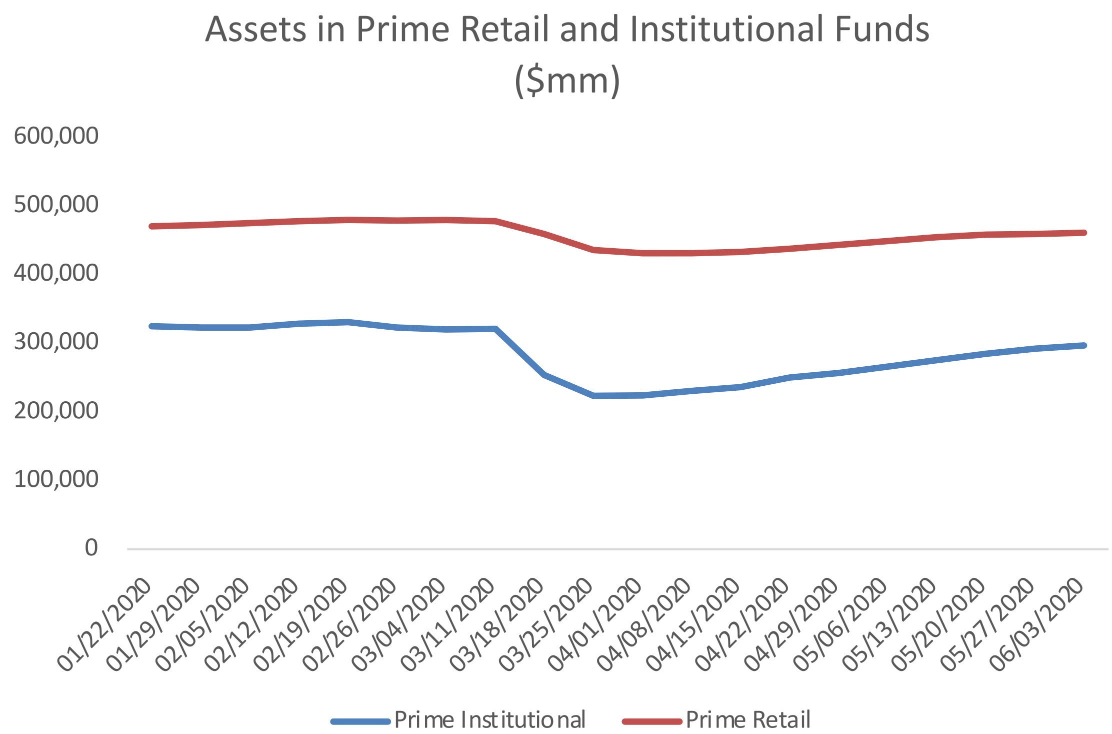
- Concern about financial stability risks associated with bond mutual funds:
    - Like banks they offer daily liquidity though underlying assets are illiquid
    - Forced sales could lead to price dislocations
    - Potential for spillover effects on leveraged financial intermediaries

- Concern was borne out in the Covid crisis

Covid Crisis and Corporate Bond Mutual Fund Performance

- Very large redemptions from corporate bond mutual funds in early March (Falato, Goldstein, Hortacsu, 2020)
- Corporate bond mutual funds sell Treasuries and most liquid bonds to meet redemptions (Ma, Xiao, and Zeng, 2020)
- Selling pressure on Treasuries and investment-grade bonds results in large price declines, increase in corporate bond spreads – Flight <u>away</u> from quality
- Large price dislocations (Haddad, Moreira and Muir, 2020):
  - CDS bond basis for IG credit becomes very negative (spreads on bonds widen relative to CDS spreads)
- Dealers do not step in to arbitrage these pricing dislocations despite having (or perhaps because they have) small presence in corporate bond market
- Spreads tighten only when Fed announces bond-buying program

The Covid-19 Run on Prime Institutional Money Market Funds



- ~150bn drop in money market fund assets, 30% drop in institutional assets; 10% drop in retail assets
- Top 10 prime institutional sponsors have $440bn of assets according to Crane's MMF database. On average a 30% drop in assets in one month.
- Two large bank sponsors saw drops of 55% and 60% and provided support for their funds by purchasing assets

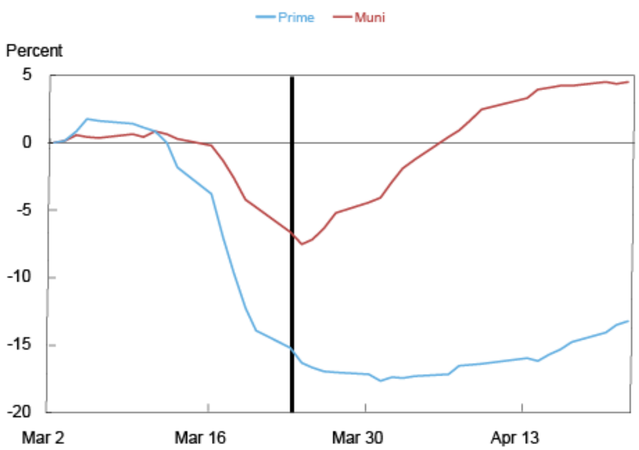
And another bailout

- Money Market Mutual Fund Liquidity Facility (MMLF)
  - Fed collateralized funding for banks to purchase paper held by money market fund as of 3/23/20
  - Collateral value based on amortized cost (not fair value or market value) and no haircut on funding
  - Treasury provides $10 billion of credit protection
  - Non-recourse to the borrower
  - About $54 billion of borrowing under the facility (about 1/3 of the drop in prime MMF assets)

- Commercial Paper Funding Facility (CPFF2020)
  - Fed lends to SPV to purchase term commercial paper
  - Reduces strain on commercial paper market indirectly helping MMFs
  - Relatively modest utilization (~$4 billion)

The bailout stopped the run

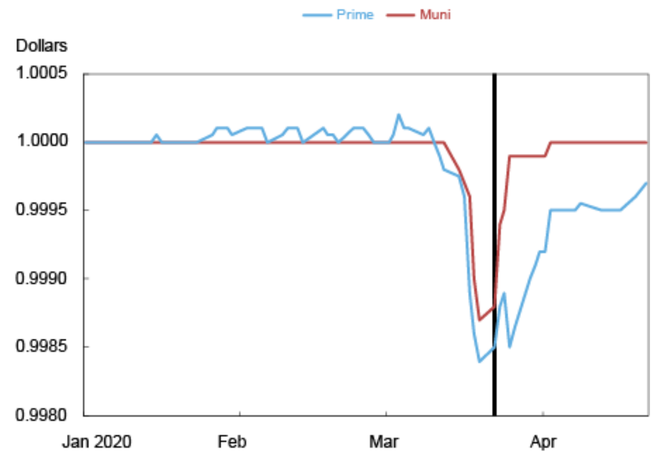
Large Outflows from Prime and Muni MMFs Abate after the Facility's Inception



Source: iMoneyNet.

Notes: The lines represent the cumulative percentage flows starting March 2, 2020. The vertical bar marks the day of the facility's inception.

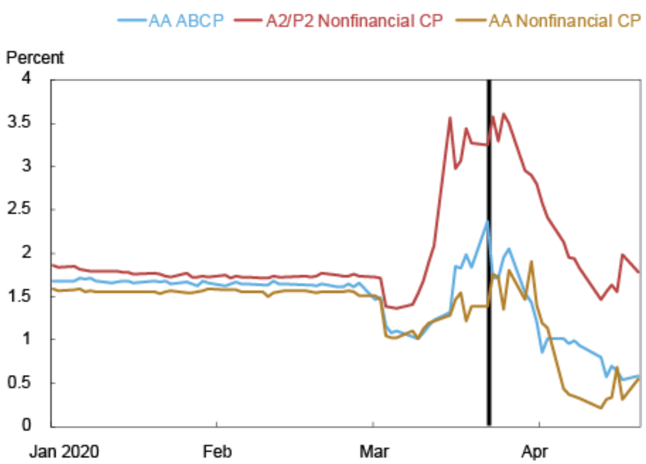
New Facility Drives NAV Recovery



Source: iMoneyNet.

Notes: This chart plots the tenth percentile of the net asset value (NAV) of domestic prime and muni MMFs. The vertical bar marks the day of the facility's inception.

Rates on 30-day Commercial Paper Ease



Source: Board of Governors of the Federal Reserve System.

Notes: ABCP is asset-backed commercial paper. CP is commercial paper. The vertical bar marks the day of the facility's inception.

Source: Cipriani, La Spada, Orchinik, and Plesset, "The Money Market Mutual Fund Liquidity Facility," Liberty Street Economics, Federal Reserve Bank of New York

The SEC MMF Rule Implemented in 2016

- Floating NAV for institutional prime and institutional municipal funds; fixed NAV preserved for all other funds

For all funds except Treasury and Gov't funds:

- Liquidity Fees
  - MMF can, at its discretion, impose fee upon redemption of up to 2% if liquid assets fall below 30%.
  - If liquid assets fall below 10% they are "required" to impose a fee of 1% unless they decide they want a higher fee or no fee.

- Redemption Gates
  - If liquid assets fall below 30%, MMF can prevent redemption for up to 10 days

Floating NAVs did not make prime MMFs less run-prone

"During times of stress, it [Floating NAV] will reduce much of the economic incentive for shareholders to redeem shares ahead of other investors at a stable net asset value when the market value of portfolio holdings fall and will reduce shareholder dilution. As such, the risk of heavy share redemptions should decrease, and shareholders will be treated more equitably as they absorb their proportionate share of gains, losses, and costs. "

-- **There is still an incentive to get out early before MMFs are forced to sell their less liquid assets at market (fire-sale) prices**

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"To the extent that some of these investors become more aware of the risks, they may develop an increased risk tolerance that could help make them less prone to run."

-- **Institutional investors in MMFs were not risk-intolerant and ran**

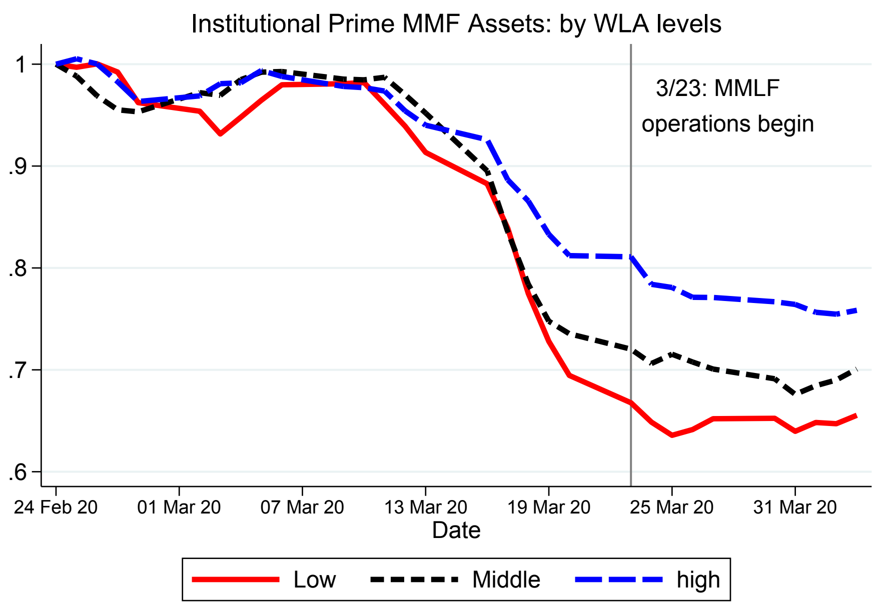
"An additional motivation of this reform is that the floating NAV may make it more transparent to certain of the impacted investors that they, not the fund sponsors or the federal government, bear the risk of loss."

-- **Investors do not bear a risk of loss. Indeed, money flowed back into the industry. Some funds now are larger than they were before the pandemic.**

Fees and gates may have made prime MMFs more run-prone

"Fees and gates provide funds and their boards with additional tools to stem heavy redemptions and avoid the type of contagion that occurred during the financial crisis by allocating liquidity costs to those shareholders who impose such costs on funds and by stopping runs. "

-- <u>Fear of gates and fees may have increased the incentive to run</u>

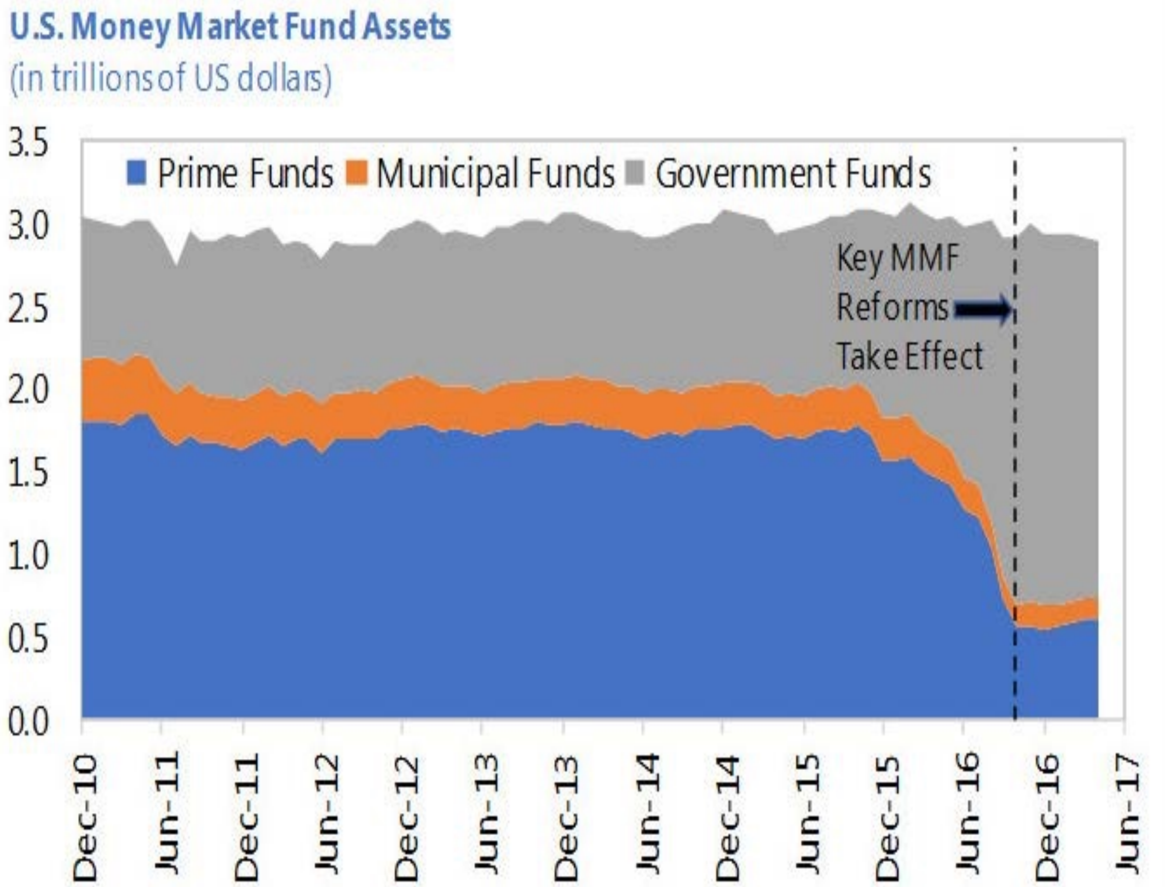


Note: Assets in each WLA groups are normalized to be 1 on Feb 24, 2020.

Source: Li, Li, Machiavelli, and Zhou, "Runs and Interventions in the Time of Covid-19: Evidence from Money Funds," Federal Reserve Board working paper

SEC’s 2016 Regulation Reduced the Prime MMF Sector

Figure 3. U.S. Money Market Fund Assets



Source: S.E.C., Haver.

Policy Options for MMFs

Fundamental Reform Options

- Require MMFs to issue a subordinated share class that takes first loss
  - Hanson, Scharfstein and Sunderam (2015) estimate that subordinated shares equal to 4% of MMF assets would be enough to reduce the risk of a loss on senior MMF share class to levels consistent with bank default probabilities (0.1%)
  - Given relatively low risk of MMF assets, the cost of the subordinated share class is only about 125 bps over risk-free rate
  - Thus, senior MMF shares only pay about 6bps for the capital buffer (4% x 125 bps)

- Require MMFs to purchase private backup liquidity facility from banks
  - Banks would have to hold capital and liquidity against these facilities

More Modest Reform Options

- Enhanced capital and liquidity rules for bank sponsors of prime institutional MMFs

- Adjust liquidity rules
  - Eliminate gates and fees
  - Allow (encourage) MMFs to go below the 30% threshold in stressed conditions

Policy Options for Bond Mutual Funds

- Enhanced liquidity regulation
  - Bond funds should be required to hold more liquidity

- Swing Pricing
  - In theory, investors should internalize the cost of redemption
  - In practice, Jin et. al. (2021), using data from UK FCA, document that swing pricing was effective in stemming redemption from open ended bond mutual funds in the UK during periods of stress (2006-2016)
    - Funds that switched to swing pricing experienced less redemption during periods of stress
    - The same investor redeems less from funds that use swing pricing