

# Bank Debt versus Mutual Fund Equity in Liquidity Provision

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# Motivation

- ▶ Bond mutual funds have become increasingly important
  - ▶ Like banks, hold illiquid assets and issue redeemable claims
  - ▶ Unlike banks, the claim is an **equity** contract, i.e., redemption value adjusts to asset values
- ▶ This paper:
  - ▶ Do bond funds provide liquidity? How much liquidity do funds provide compared to banks?
  - ▶ What are the financial stability implications of liquidity provision by fund equity?

# 1. How Much Liquidity do Funds Provide?

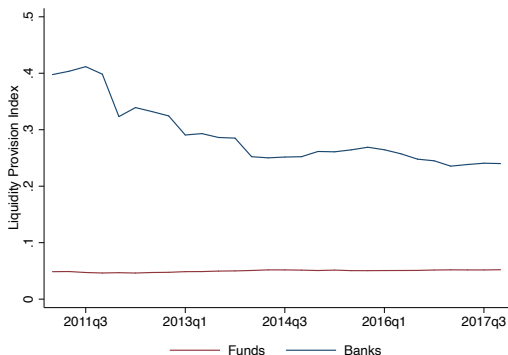
- ▶ Generalize a Diamond and Dybvig 83 model to mutual funds
- ▶ Result 1: funds do provide liquidity
  - ▶ Investors subject to idiosyncratic liquidity shocks
  - ▶ A fund pools the liquidity shocks together
  - ▶ ... and allow more illiquid assets to be held to maturity
- ▶ Result 2: a unified measure of liquidity provision
  - ▶ Liquidity provision index

$$\text{LPI} = \frac{\text{Contract payment}}{\text{Liq. value of underlying assets}} - 1$$

# 1. How much Liquidity do Funds Provide in Practice?

- ▶ The average bond fund provides 5 cents of liquidity per dollar
- ▶ One-fifth that of banks, but the gap is narrowing over time due to QE and LCR

Figure: Average Fund LPI versus Bank LPI



## 2. Contract Design and Stability

- ▶ Conventional wisdom: runs are often associated with debt
  - ▶ Debt: redemption value is rigid
- ▶ Result 3: fund equity remains susceptible to runs:
  - ▶ Equity: redemption value is flexible to asset value changes
- ▶ Result 4: combining equity with swing pricing can avoid runs
  - ▶ Swing pricing: redemption value is responsive to outflows

## 2. Design of Fund Equity Contract

- ▶ Redemption value = NAV  $\times$   $\delta$ ,  $\delta$ : swing factor

$$\delta = \frac{\sum_{j=0}^{J-1} (1 - \phi_j) w_j + \sum_{j=J}^N (1 - \phi_J) w_j}{1 - (1 - \lambda) \phi_J}$$

when  $\lambda_{J-1} < \lambda \leq \lambda_J$

- ▶  $w_j$  is the portfolio weight of asset  $j$
  - ▶  $\lambda$  is the outflow
  - ▶  $\phi_j$  is the liquidation cost of asset  $j$
- ▶ Higher outflows, higher asset illiquidity  $\rightarrow$  lower  $\delta$

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- ▶ **Swing pricing could increase fund LPI by 6.7%.**

# Overall Takeaways

1. Bond funds have become an important contributor to liquidity provision
  - ▶ one-fifth the amount of liquidity per dollar as banks
2. A unified measure of liquidity provision: LPI
  - ▶ Useful to monitor non-bank liquidity provision
3. Important to understand the design features of fund equity
  - ▶ Swing pricing can prevent runs and a repeat of March 2020
  - ▶ Swing pricing also enhances fund liquidity provision