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 revision 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

\[
LPI = \frac{\text{Contract payment}}{\text{Liq. value of underlying assets}} - 1
\]
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 × δ, δ: 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 \( \delta \)
3. Effect of Swing Pricing on Liquidity Provision

- Concern: swing pricing may decrease liquidity provision
  - Redemption value falls with larger outflows
  - Investors do not get as much as NAV
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  1. Swing pricing reduces panic-driven outflows
  2. Funds can hold more illiquid assets, which could increase liquidity provision
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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