Liquidity Transformation in Asset Management

Evidence from the Cash Holdings of Mutual Funds

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Motivation

- **Liquidity transformation** is a key function of many financial intermediaries
  - Banks: illiquid loans $\rightarrow$ liquid deposits.
- **Policy debate** on whether liquidity transformation by asset managers can cause financial stability problems.
  - FSB (2016), Goldstein et al (2015), BIS (2015), Haldane (2014), SEC (2015), FSOC (2014), Feroli et al (2014), Chen et al (2010).

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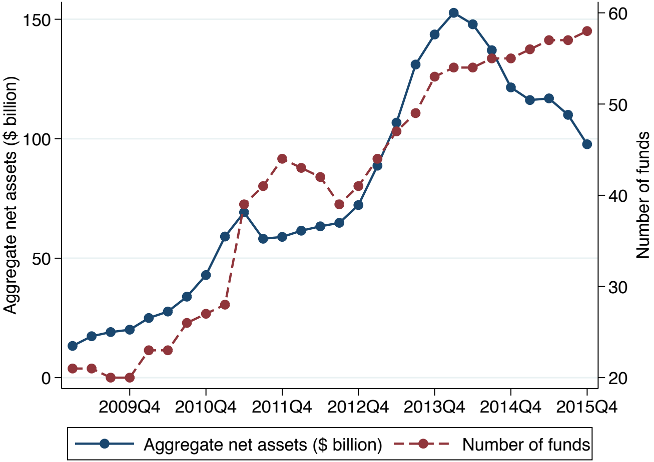
Figure: Growth of Loan Mutual Funds



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- **Banks:** maturity mismatch is a good measure of liquidity transformation.
- **Asset managers:** liquidity transformation is more difficult to measure.
    - Intermediaries flatten price-quantity schedule faced by investors.
    - Open-end mutual fund pool transactions costs across investors.
    - In principle, can trade unlimited quantities at end-of-day NAV.

Revealed Preference Approach

By **revealed preference**, the way mutual funds manage own liquidity to provide open-ending to investors sheds light on how much liquidity transformation they are performing.

1. How aggressively funds use cash to accommodate fund flows (net subscriptions/redemptions) is a measure of liquidity transformation.
   - If fund assets were perfectly liquid, no need to use cash; always trade in the underlying.
   - Funds performing more liquidity transformation should more aggressively use cash to accommodate flows.
2. The level of cash holdings is a measure of equilibrium liquidity transformation.
   - In the model, cash holdings scale with the fund's expected liquidation costs.
   - Funds that invest in less liquid assets, hold more cash.
   - But not enough to fully offset their higher expected liquidation costs.

Basic Results

Test using data on the US open-end mutual funds over 2003–2014.

1. Mutual funds use cash to accommodate inflows and outflows.
   - For each **$1 of fund flows** during month t cash adjusts by 23 cents for equity funds and 33 cents for bond funds.
2. Asset liquidity affects propensity to accommodate flows using cash.
3. The level of cash holdings is strongly related to liquidity transformation.
   - Asset illiquidity $\uparrow$ 1SD $\Longrightarrow$ cash-to-assets ratio $\uparrow$ 0.9%.
   - Flow volatily $\uparrow$ 1SD $\Longrightarrow$ cash-to-assets ratio $\uparrow$ 0.4%.
   - Interaction: funds with very liquid assets are close to the frictionless null. Volatility of fund flows does not affect their cash-to-assets ratio.

Results consistent with substantial liquidity transformation in mutual funds.

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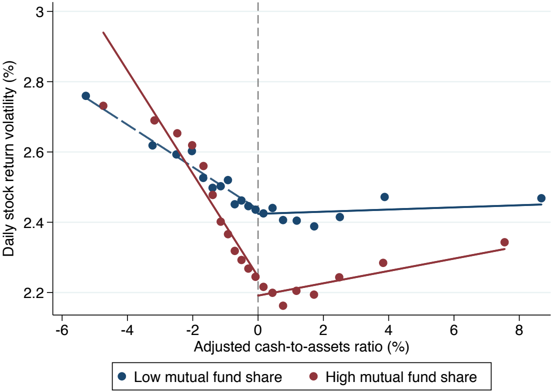
Since most funds do not fully internalize their price impact, they hold too little cash.

Mutual Fund Cash Holdings and Stock Fragility



Stocks held by funds with abnormally low cash holdings experience higher return volatility over the following quarter.

Revealed Preference Approach to Corporate Bond Liquidity

- Concerns about the deterioration in liquidity in the corporate bond market after the 2007–2008 financial crises and subsequent regulatory reforms.
- Standard measures indicate that liquidity is similar to pre-crisis levels.
- **Caveat:** standard measures are available only for bonds that trade. Fraction of bonds with measured liquidity has been declining.
- **Revealed preference approach:**
  - Can ask how the relation between cash holdings and flow volatility has changed over time and for different bonds.
  - Deterioration in liquidity should strengthen the relation between cash holdings and fund flow volatility.
  - Strengths: not limited to bonds that trade; agnostic about the "right" measure of liquidity.
  - Weaknesses: limited to bonds held by multiple mutual funds.

Conclusion

1. Mutual funds perform an economically meaningful amount of liquidity transformation.
    - Funds use cash to accommodate inflows and outflows.
    - Funds that perform more liquidity transformation hold more cash.
2. Liquidity transformation in asset management is highly dependent on liquidity provision by the traditional banking and shadow banking sectors.
3. Despite their size, cash holdings of mutual funds are not large enough to completely mitigate price impact externalities.