Readme File

Bank Debt, Mutual Fund Equity, and Swing Pricing in Liquidity Provision

This document explains the code used to replicate all results in the paper. Underneath each code, we include the list of input and output files. The first set of codes calculates the Liquidity Provision Index for mutual funds, banks, and money market funds (MMF). The second set of codes generates the paper's results.

Input data files are stored in the folder "data_input", intermediate files are stored in the folder "data_intermediate", and figures and tables are stored in the folder "output".

For all licensed datasets that cannot be shared, we provide sample data that follows the structure of the original datasets.

Part I: Codes that Calculate Mutual Fund, Bank, and MMF LPI

0_fund_lpi.do: this file generates LPI of mutual funds

Input

- data_input/mf_prelmi_cleaned_2011_2017.dta
    - Liquidity discount by category.
        - Variables starting with awgt_
        - Data source. corporate bonds: TRACE; Treasuries: Adrian, Fleming, Shachar and Vogt (2017) and Fleming and Ruela (2020); stocks: WRDS; MBS and ABS: New York Fed
    - Fund asset data
        - Variables starting with "a_f"
        - Data Source: CRSP
    - Fund flow data
        - Flow
        - Data Source: CRSP
- data_input/VIX.dta
    - VIX index and indicator for high VIX index quarters.
    - Data source: FRED

- corpbond_IRC_HY.dta
    - Data source: TRACE

Output:

- fund_ltisample_haircutrobust_new.dta
- fund_ltisample_haircutrobust_1.dta
- fund_ltisample_haircutrobust_2.dta
- fund_ltisample_haircutrobust_3.dta
- fund_ltisample_haircutrobust_4.dta
- fund_ltisample_haircutrobust_Muni.dta

0_bank_lpi.do: this file generates LPI of banks

Input:

- data_input/data_bank.dta
    - Bank asset data from call report
        - Variables starting with "a_"
    - Repo haircuts from the New York Fed
        - Variables ending in ORG0
    - Liquidity discount from trading data
        - awgt_eq, awgt_bond, awgt_treas
        - Data source: corporate bonds: TRACE; Treasury: Adrian, Fleming, Shachar and Vogt (2017) and Fleming and Ruela (2020); stocks: WRDS
- mkt_IRC_HY_vol.dta
    - Transaction volume-weighted average of IRC
    - Data Source: TRACE
- bank_flow.dta
    - bank deposit and total liability flow data
    - Data source: call report

Output:

- bank_ltisample_haircutrobust_new.dta
- bank_ltisample_haircutrobust_1.dta
- bank_ltisample_haircutrobust_2.dta
- bank_ltisample_haircutrobust_3.dta
- bank_ltisample_haircutrobust_4.dta

0_mmf_lpi.do: this file generates LPI of money market funds

Input:

- data_input/data_mmf.dta
    - MMF portfolio shares

        - Variables starting with “sa_”
        - Data Source: iMoneyNet
    - MMF flows
        - Flow
        - Data Source: iMoneyNet
    - Repo haircuts from the New York Fed
        - Variables starting with “awgt_” and ending in “ORG0”

Output:

- data_intermediate/mmf_ltisample_haircutrobust_new.dta

Part II: Codes that Analyze Mutual Fund, Bank, and MMF LPI

1_pdftimeseries.do: this file generates time series plots of mutual fund and bank LPI

Output:

- Figure 4
- Figure 5
- Figure 6

2_crosssectionbank: this file generates cross-sectional results of bank LPI

Additional Input:

- data_input/bankassetsliab.dta
    - Bank balance sheet variables
    - Data source: call report

Output:

- Table 1b
- Table 2b
- Table 4
- Table 6
- Internet Appendix Table A.3

3_crosssectionfund: this file generates cross-sectional results of mutual fund LPI

Additional Input:

- data_input/fund_characteristics.dta
    - fund characteristics
    - Data Source: CRSP

Output:

- Table 1a
- Table 2a
- Table 3
- Table 5
- Internet Appendix Table A.2

4_bankregulation.do: this file analyzes the effect of LCR and QE on bank LPI

Additional Input:

- data_input/lcrid.dta
    - Identifies banks that are subject to LCR requirements
- data_input/reserves.dta
    - Aggregate reserves
    - Data source: FRED
- data_input/bankassetsliab.dta
    - Bank balance sheet variables
    - Data source: call report

Output:

- Figure 7

5_mmmf.do: this file generates results for MMF LPI

Output:

- Figure 8
- Table 7

6_aggregate_trend.do: this file generates Figure 1

Input:

- Data_input/aggbondfundasset.dta
    - Aggregate time series of taxable bond and municipal bond data
    - Data Source: Morningstar

- data_input/bank_deposits
    - Aggregate time series of bank deposits
    - Data Source: FRED

Output

- Figure 1

7_haircut_plot: this file plots haircut data over time

Additional Input:

- data_input/haircut_plot_data.dta

    - Average liquidity discount from trading data
    - Data source: corporate bonds: TRACE; Treasuries: Adrian, Fleming, Shachar and Vogt (2017) and Fleming and Ruela (2020); stocks: WRDS
- data_input/haircut_others_plot_data.dta
    - Imputed liquidity discounts using the average liquidity of corporate bonds and the relative liquidity ratio between asset classes in Chernenko and Sunderam (2020) and the collateral haircuts in repo markets
    - Data source: New York Fed

Output:

- Figure 3

8_LPI_simulation.ipynb: this file numerically solves and then stimulates the model in Section 2, generating Figure 2

Output:

- Figure 2

References

Adrian, Tobias, et al. "Market liquidity after the financial crisis." *Annual Review of Financial Economics* 9.1 (2017): 43-83.

Chernenko, Sergey, and Adi Sunderam. *Measuring the perceived liquidity of the corporate bond market*. No. w27092. National Bureau of Economic Research, 2020.

Fleming, Michael, and Francisco Ruela. "Treasury market liquidity during the COVID-19 crisis." (2020).