README for Kargar, Lester, Lindsay, Liu, Weill, and Zúñiga (2021)

Overview

The R codes in this replication package are run on two main database: (i) the TRACE data: the standard version (for 2020Q1) from WRDS, the End-of-Day version (for 2020Q2) from FINRA, and master file (for Corporate and Agency Debt) from WRDS; (ii) Mergent Fixed Income Securities Database (FISD): Bond Issues and Bond Ratings.

Dataset list

Data file	Source	Notes	Provided
`TRACE_BTDS.csv`	standard TRACE Bond Trades (BTDS)	WRDS Confidential	No
`BTDS_144A.csv`	standard TRACE Bond Trades (BTDS 144A)	WRDS Confidential	No
AD.csv	standard TRACE Bond Trades (ATDS)	WRDS Confidential	No
`bond_master.csv`	TRACE Master File-Corporate and Agency Debt	WRDS Confidential	No
`MPPBTDSS_CUSIP_2020_*.csv`	TRACE End-of-Day Data	FINRA Confidential	No
`Updated2020_FISD_Issue.csv`	FISD Bond Issue	WRDS Confidential	No
`Updated2020_FISD_rating_data.csv`	FISD Bond Rating	WRDS Confidential	No
`merged_market_sentiment.csv`	FINRA TRACE Market Aggregate Information, section "Market Sentiment"	FINRA public[1]	No
`Compustat_data.csv`	Fundamentals Annual	WRDS Confidential	No

Software Requirements

- R 4.0.3 or above

Description of code

- Run codes run in the following order:

    1. The code `Replicating_standard_TRACE_rawdata.R` (i) cleans standard TRACE according to Dick-Nielsen (2014) filter described in Appendix A.1, (ii) merges filtered data with "bond_master" and FISD to incorporate bond fundamentals and ratings, and (iii) excludes bonds with option-like characteristics.

       This code generates file `Data_FilterMerge_standard_TRACE.csv`, which will be the input in step-2 code.

    2. The code `Replicating_standard_TRACE_sumstat.R` uses filtered and merged standard data to calculate the main time series of interest, including MIRC, CH, and proportion of agency trades in volume and number, etc., for different groups of bonds (eligible and ineligible, IG and HY, less-than-5yr-TTM and longer-than-5yr-TTM, etc.).

       This code generates output file `SumStat_standard_TRACE.csv`.

    3. The code `Replicating_EOD_TRACE_rawdata.R` (i) cleans EOD TRACE according to Dick-Nielsen filter, (ii) merges filered data with "bond_master" and FISD to incorporate bond fundamentals and ratings, and (iii) excludes bonds with option-like characteristics.

       This code generates file `Data_FilterMerge_EOD_TRACE.csv`, which will be put in step-3 code. This procedure is described in Appendix A.1.

    4. The code `Replicating_EOD_TRACE_sumstat.R` uses filtered and merged EOD data to calculate the main time series of interest, including MIRC, CH, and proportion of agency trades in volume and number, etc., for different groups of bonds (eligible and ineligible, IG and HY, less-than-5yr-TTM and longer-than-5yr-TTM, etc.).

       This code generates file `SumStat_EOD_TRACE.csv`.

    5. The code `Replicating_Combine_SumStats_standard_EOD.R` combines time series of MIRC, CH, proportion of agency trades, etc., for different groups of bonds, generated in `SumStat_standard_TRACE.csv` and `SumStat_EOD_TRACE.csv`.

       This code generates output file `SumStats_combine_TRACE_standard_EOD_Jan_June.csv`.

    6. The code `Replicating_EligibleIneligible_standard_TRACE_sumstat.R` generates time series of MIRC, CH, proportion of agency trades, etc., separately for Eligible and Ineligible bonds for

[1] The data can be accessed at https://finra-markets.morningstar.com/BondCenter/TRACEMarketAggregateStats.jsp

the SMCCF using standard TRACE data (2021Q1).

This code generates output files
`SumStat_Eligible_standard_TRACE.csv` and `SumStat_Ineligible_standard_TRACE.csv`.

7. The code `Replicating_EligibleIneligible_EOD_TRACE_sumstat.R` generates time series of MIRC, CH, proportion of agency trades, etc., separately for Eligible and Ineligible bonds using End-of-Day (EOD) TRACE data (2021Q2).

   This code generates output files
   `SumStat_Eligible_EOD_TRACE.csv` and `SumStat_Ineligible_EOD_TRACE.csv`.

   Then (i) we combine `SumStat_Eligible_standard_TRACE.csv` and `SumStat_Eligible_EOD_TRACE.csv`, and obtain **`EligibleBonds_standard_EOD_summarystatistics_04042021.csv`**;
   (ii) we combine `SumStat_Ineligible_standard_TRACE.csv` and `SumStat_Ineligible_EOD_TRACE.csv`, and obtain **`IneligibleBonds_standard_EOD_summarystatistics_04042021.csv`**. The two combined files will be used as inputs for `Replicating_figures.R` in the next step.

8. The code `Replicating_figures.R` generates Figures 1, 2, 3, 5, 7, 8, and 9 in the paper and Figure A.1 in the Appendix. This code uses FINRA market sentiment data `merged_market_sentiment.csv` to create Figure 3. For Figure 8, we use the summary statistics for bonds that are eligible for the Secondary Market Corporate Credit Facility (SMCCF) in `EligibleBonds_standard_EOD_summarystatistics_04042021.csv` and the ones that are ineligible in `IneligibleBonds_standard_EOD_summarystatistics_04042021.csv`.

9. The code `Replicating_sigma_estimates.R` uses "`SumStats_combine_TRACE_standard_EOD_Jan_June.csv`" and "`merged_market_sentiment_data.csv`" to estimate the semi-elasticity of the inverse demand function σ. This creates Table 5 in the paper, Tables A8 and A9 in the Appendix. and Tables OA6 and OA7 in the Internet Appendix.

10. The code `Replicating_bond_level_transaction_cost_TRACE_EOD.R` generates transaction-level data for agency and risk-principal transaction costs for EOD TRACE data, "`Reg_Data_transactionwise_EOD_11072020.csv`".

11. The code `Replicating_bond_level_transaction_cost_regular.R` generates transaction-level data for agency and risk-principal transaction costs for standard TRACE data, "`Reg_Data_transactionwise_regular_11072020.csv`", then combine them with the transaction-level data for EOD TRACE, "`Reg_Data_transactionwise_EOD_11072020.csv`" form the previous step.

    The output combined file
    "`Combine_Reg_Data_transactionwise_regular_EOD_creditrating_RD_FA_11072020.csv`" is

used as the input in `Replicating_empirical_results.R` for empirical analysis.

12. The code `Replicating_empirical_results.R` uses data generated in the previous steps to create Tables 1, 2, 3, 4, 5 in the paper, Tables A.2, A.3, A.4, A.5, A.6, A.7 in the Appendix, and Internet Appendix Tables OA1, OA2, OA3, OA4, and OA5.

- Other auxiliary codes:
  - The code `assign_val_rating.R` assigns numeric values to S&P, Moody's and Fitch ratings, by taking averages across the three ratings and re-assigning new ratings (according to S&P categories) to each bond.