

README FILE FOR
“THE DOLLAR AND EMERGING MARKET ECONOMIES:
CHANNELS AND IMPACTS”

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1 Overview

This README file describes the replication package associated with the paper “The Dollar and Emerging Market Economies: Channels and Impacts” by Bruno Cavani and Samer F. Shousha.

The package consists of code and input datasets that replicate all figures and tables in the paper and the online appendix. The empirical work uses three platforms: a structural VAR (SVAR) estimated in MATLAB, local projections (LP) estimated in Stata, and the country exposure indexes constructed in R. All exhibits are rendered in black and white. The uppermost directory contains the following objects:

1. README.pdf: this file; details the replication package.
2. code: folder containing all estimation, data-construction, and plotting scripts.
3. data: folder containing the input datasets and the intermediate (built) datasets.
4. output: folder containing the figures and tables in the paper and appendix.
5. paper: folder containing the manuscript and online appendix (.tex and .pdf).

Every script uses paths relative to code/ (i.e., ../data and ../output); run each script with code/ as the working directory. The package ships with all final inputs and all generated outputs, so any single exhibit can be reproduced without re-running the upstream data-construction steps.

2 Datasets, Data Availability and Provenance Statements

This paper analyzes data from several external sources. As the authors, we are secondary data users (we did not generate the underlying data), so the provenance and data availability statements coincide.

Statement about Rights

The authors certify that we have legitimate access to and permission to use all data in this manuscript. All data included in the replication package are publicly available and may be freely redistributed.

Summary of Data Availability

All input files needed to produce the exhibits are included under data/. The macro and exposure series are drawn from public statistical sources (IMF, BIS, OECD, the Federal Reserve, and published academic datasets), listed source by source in the Online Appendix.

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Details on each Data Source

The following lists the input files required to replicate the analysis, with a description of each file's contents. All paths are relative to the root replication folder.

2.1 Raw input datasets

2.1.1 Baseline SVAR panel

(i) data/BaselineData.mat

- **Description:** The baseline panel used by every MATLAB SVAR routine: 96 quarters $\times$ (16 countries $\times$ 11 variables). The 11 variables per country block are, in order, U.S. output, the U.S. policy rate, a global uncertainty measure, the broad U.S. dollar index, and the EME's output, investment, exports, imports, real credit, policy rate, and real effective exchange rate (REER).

2.1.2 Macro panel for the local projections

(i) data/LP_macro_raw.xlsx

- **Description:** Quarterly macro series, one worksheet per country, used to assemble the LP panel.

2.1.3 Exposure-index inputs

(i) data/MICE_input_data.xlsx

- **Description:** Inputs for the exposure-index imputation: macroeconomic predictors, dominant-currency invoicing shares, global-value-chain participation, (foreign-currency balance-sheet exposure, and monetary-policy credibility.

(ii) data/usd_channels.xlsx

- **Description:** Country-level values of exposure indexes, used in Appendix F.1.

2.1.4 Series for individual figures

(i) data/InvoicingUSD.dta

- **Description:** USD invoicing shares used in Figure 2.

(ii) data/BIS.dta

- **Description:** BIS USD-denominated credit to EMEs used in Figure 3.

(iii) data/RTWEXEMEGS.xls

- **Description:** Broad real dollar index for emerging-market economies, used in Figures 9–11.

(iv) data/er_to_merge.dta

- **Description:** Nominal exchange rates, used in Appendix H.1.

(v) `data/placebo_currencies.csv`

- **Description:** Broad effective exchange-rate indexes for the Japanese yen, U.K. pound, and euro, used as placebo shocks in Appendix D.

(vi) `data/regime_to_merge.dta`

- **Description:** Exchange-rate regime and anchor-currency classification by country and quarter (1980–2021), used for the peg-float split in Appendix J.

2.2 Intermediate (built) datasets

These are produced by the data-construction pipeline (Section 4.2) and are included so the figures can be run directly.

- (i) `output/MICE_balanced_exposures_annual.xlsx` — balanced annual exposure indexes; built by `MICE_balance_exposures.R`.
- (ii) `data/balanced_exposures_quarterly.csv` — quarterly exposure indexes; constructed by `Exposures_to_quarterly.R`.
- (iii) `data/0_data_for_LP.dta` — assembled quarterly LP panel; built by `Assemble_LP_data.do`.

3 Computational Requirements

The analysis runs on a standard personal computer, no high-performance computing is required. It was last run on Apple MacBook Pro, M3 Pro chip, 11-core CPU, 36GB RAM, macOS Sonoma 14.4.

Run time is dominated by the SVAR residual-resampling bootstrap, which uses `ndraws = 100,000` draws. On the authors' machine the bootstrap runs at roughly 10 seconds per 100 draws, so each bootstrap of the full 16-country panel takes about 2.5–3 hours; the subgroup, individual-country, and peg-float bootstraps run on smaller panels and are faster per draw. Reproducing the entire set of SVAR exhibits at the full draw count therefore takes on the order of one day. The Stata local-projection figures and the R data-construction and MICE steps each complete in a few minutes.

Because the SVAR point estimates and forecast-error variance decompositions do not depend on the bootstrap, only the error bands do, the draw count can be lowered (e.g., `ndraws = 2,000`) to reproduce every exhibit to visual accuracy in a small fraction of the time.

3.1 Software Requirements

- **MATLAB R2019b** or later (base install; no additional toolboxes required). Runs the SVAR estimation, IRFs, FEVDs, bootstrap bands, and the associated figures and tables.
- **Stata 17 or later.** Version 17+ is required for the native `lpirf` (local-projection IRF) command used by the LP figures. No user-written commands are required.
- **R 4.4.0**, with `mice`, `dml`, `data.table`, `readxl`, `writexl`, `dplyr`, `tidyr`, `zoo`, `lubridate`, `ggplot2`.

4 Description of Programs and Code

4.1 Code Structure

All code lives in `code/`. Driver scripts are named for the exhibit they produce; shared MATLAB routines (Section 4.5) are called by the drivers and are not run directly.

```
jmc_b_replication/  
├── code/  
│   ├── MICE_balance_exposures.R  
│   ├── Exposures_to_quarterly.R  
│   ├── Assemble_LP_data.do  
│   ├── Pooled_EMEUSD.m (Fig. 4; Tables 1–2; Fig. 1 data)  
│   ├── SubgroupAnalysis.m (Table E.1; Figs. G.1–G.4)  
│   ├── FigureC1_Feedback.m [...] FigureC6_IndividualVARs.m (Figs. C.1–C.6)  
│   ├── FigureD_Placebo.m (Fig. D)  
│   ├── FigureI1_PegFloat.m (Fig. I.1)  
│   ├── Figure1.do, Figure2.do, Figure3.do (Figs. 1–3)  
│   ├── Figures5to8.do, Figures9to11.do (Figs. 5–11)  
│   ├── FigureB1_MICE.R (Fig. B.1)  
│   ├── FigureF1_ExposureGroups.do (Fig. F.1)  
│   ├── FigureH1_NER.do (Fig. H.1)  
│   ├── FigureJ_PegFloatChannels.do (Figs. J.1–J.4)  
│   └── [shared MATLAB functions — see Section 4.5]  
├── data/  
├── output/  
├── paper/  
└── README.pdf
```

4.2 Data Construction

Run in order; each step writes the input for the next. The outputs are already included, so this block is optional.

1. `code/MICE_balance_exposures.R`

► **Description:** Multiple-imputation balancing of the annual DCP, GVC, BS exposure panels.

- Input: `data/MICE_input_data.xlsx`
- Output: `output/MICE_balanced_exposures_annual.xlsx`

2. `code/Exposures_to_quarterly.R`

► **Description:** Converts the balanced annual indexes to quarterly with a local-level state-space smoother (`d1m`) and appends the quarterly MP-credibility series.

- Inputs: `output/MICE_balanced_exposures_annual.xlsx`, `data/MICE_input_data.xlsx`
- Output: `data/balanced_exposures_quarterly.csv`

3. `code/Assemble_LP_data.do`

- **Description:** Merges the macro panel with the quarterly exposures, and builds the dollar shock, the exposure interactions, and the trend terms.

- Inputs: `data/LP_macro_raw.xlsx`, `data/balanced_exposures_quarterly.csv`
- Output: `data/0_data_for_LP.dta` (the same panel used to produce the published figures)

4.3 SVAR Analysis and Figures (MATLAB)

1. `code/Pooled_EMEUSD.m`

- **Description:** Estimates the baseline SVAR, computes IRFs, the FEVD, and bootstrap bands, and produces Figure 4, Table 1, Table 2, and the Figure 1 data export.

- Input: `data/BaselineData.mat`
- Outputs:
 - `output/SVAR_Baseline_REERUSD.eps`
 - `output/SummaryStats.tex`
 - `output/FEVD_BroadUSD.tex`
 - `output/figure1_data.csv`

2. `code/SubgroupAnalysis.m`

- **Description:** Splits the 15-EME sample (South Africa excluded) into high/low exposure groups for each channel and estimates the SVAR separately, producing Table E.1 (FEVD by group) and Figures G.1–G.4 (group IRFs).

- Input: `data/BaselineData.mat`
- Outputs:
 - `output/VarDecomp_Subgroup.tex`
 - `output/SVAR_Subgroup_DCP.eps`
 - `output/SVAR_Subgroup_GVC.eps`
 - `output/SVAR_Subgroup_BS.eps`
 - `output/SVAR_Subgroup_MP.eps`

3. `code/FigureC1_Feedback.m`, `FigureC2_EMEYShock.m`, `FigureC3_PreGFC.m`, `FigureC4_CompAfter.m`, `FigureC5_CompBefore.m`, `FigureC6_IndividualVARs.m`

- **Description:** SVAR robustness variants (feedback ordering; EME output shock; pre-GFC sample; commodity-price controls; country-by-country VARs), producing Figures C.1–C.6.

- Input: `data/BaselineData.mat` (C.4–C.5 also read `data/LP_macro_raw.xlsx`)

- Outputs:
 - output/SVAR_Feedback.eps
 - output/SVAR_EMEYShock.eps
 - output/SVAR_PreGFC.eps
 - output/SVAR_Commp1.eps
 - output/SVAR_Commp2.eps
 - output/SVAR_IndVAR.eps

4. code/FigureD_Placebo.m

- **Description:** Estimates the SVAR replacing the dollar shock with the yen, pound, and euro as placebo (Appendix D).

- Inputs: data/BaselineData.mat, data/placebo_currencies.csv
- Outputs:
 - output/SVAR_Placebo_JP.eps
 - output/SVAR_Placebo_UK.eps
 - output/SVAR_Placebo_EU.eps

5. code/FigureI1_PegFloat.m

- **Description:** Estimates the SVAR separately for pegged and floating regimes (Figure I.1).
- Input: data/BaselineData.mat
- Output: output/SVAR_PegFloat_USD.eps

4.4 Local-Projection and Other Figures (Stata, R)

1. code/Figure1.do, Figure2.do, Figure3.do

- **Description:** Figure 1 (broad dollar vs. EME GDP and investment, from figure1_data.csv), Figure 2 (USD invoicing), and Figure 3 (USD/BIS credit).
- Inputs: output/figure1_data.csv; data/InvoicingUSD.dta, BIS.dta
- Outputs:
 - output/usd_gdp.eps
 - output/usd_inv.eps
 - output/usd_invoice.eps
 - output/usd_bis.eps

2. code/Figures5to8.do

- **Description:** Baseline LP responses by transmission channel (MP, BS, DCP, GVC), Figures 5–8.

- Input: data/0_data_for_LP.dta

- Outputs:

- output/LP_MP.pdf
- output/LP_BS.pdf
- output/LP_DCP.pdf
- output/LP_GVC.pdf

3. code/Figures9to11.do

► **Description:** LP robustness (feedback, GFC, commodity), Figures 9–11.

- Inputs: data/0_data_for_LP.dta, data/RTWEXEMEGS.xls
- Outputs (each folder holds y, inv, exp, imp, crt, r, reer):
 - output/LP_feedback/
 - output/LP_GFC/
 - output/LP_commodity/

4. code/FigureB1_MICE.R

► **Description:** MICE imputation diagnostic, Appendix B.1.

- Input: data/MICE_input_data.xlsx
- Output: output/FigureB1_MICE.pdf

5. code/FigureF1_ExposureGroups.do

► **Description:** Exposure-index bar charts by high/low group, Appendix F.1.

- Input: data/usd_channels.xlsx
- Outputs:
 - output/group_invoice.eps
 - output/group_gvc.eps
 - output/group_credit.eps
 - output/group_mpcredibility.eps

6. code/FigureH1_NER.do

► **Description:** Nominal exchange-rate response to the dollar shock (LP), Appendix H.1.

- Inputs: data/0_data_for_LP.dta, data/er_to_merge.dta
- Output: output/LP_NER.pdf

7. code/FigureJ_PegFloatChannels.do

► **Description:** LP channel responses by exchange-rate regime (peg vs. float), Figures J.1–J.4.

- Inputs: `data/0_data_for_LP.dta`, `data/regime_to_merge.dta`
- Outputs:
 - `output/LP_PvF_GVC.pdf`
 - `output/LP_PvF_DCP.pdf`
 - `output/LP_PvF_BS.pdf`
 - `output/LP_PvF_MP.pdf`

4.5 Shared MATLAB Routines

Called by the drivers above; not run directly.

- **SVAR estimation:** `Pooled_AIC.m`, `Pooled_SVAR_Base.m`, `Data_Pooling.m`, `mlag2.m`.
- **IRF and FEVD:** `IRF_SVAR.m`, `IRF_SVAR_idx.m`, `IRF_SVAR_gen.m`, `VarDecomp_SVAR.m`, `impulsdt_v2.m`.
- **Bootstrap bands:** `Bootstrap_IRF_Panel_Base.m`, `Bootstrap_IRF_Panel_gen.m`.
- **Detrending:** `nandetrend.m` (linear), `nandetrend_quad.m` (quadratic).
- **Plotting:** `Plot_IRF_Figure4.m`, `Plot_IRF_FigureC1.m`, `Plot_IRF_FigureC2.m`, `Plot_IRF_FigureD.m`, `Plot_IRF_FigureG.m`, `Plot_IRF_FigureI.m`.
- **Tables and data export:** `FEVD_USD_Table.m`, `SummaryStats.m`, `Export_Figure1_Data.m`.

5 Step-by-Step Replication Procedure

A reader interested in replicating all exhibits should proceed as follows.

1. Download the replication folder to a directory with read/write access.
2. Confirm working installations of MATLAB, Stata 17+, and R on PATH. Set each program's working directory to `code/` before running (all paths are relative to it).
3. **(Optional) Rebuild the data.** The built datasets are included; to regenerate them, run, in order: `MICE_balance_exposures.R`, `Exposures_to_quarterly.R`, then `Assemble_LP_data.do`.
4. **SVAR.** Run `Pooled_EMEUSD.m` (Figure 4, Tables 1–2, Figure 1 data), `SubgroupAnalysis.m` (Table E.1, Figures G.1–G.4), `FigureC1_Feedback.m`–`FigureC6_IndividualVARs.m` (Figures C.1–C.6), `FigureD_Placebo.m` (Appendix D), and `FigureI1_PegFloat.m` (Figure I.1).
5. **LP.** Run `Figure1.do`, `Figure2.do`, `Figure3.do`, `Figures5to8.do`, `Figures9to11.do`, `FigureF1_ExposureGroups.do`, `FigureH1_NER.do`, `FigureJ_PegFloatChannels.do`.
6. **MICE.** Run `FigureB1_MICE.R` (Appendix B.1).
7. Verify that `output/` contains the figures and tables listed in Section 6.

6 List of Figures and Tables

Main paper.

Exhibit	Program	Output file(s)
Figure 1	Figure1.do	usd_gdp.eps, usd_inv.eps
Figure 2	Figure2.do	usd_invoice.eps
Figure 3	Figure3.do	usd_bis.eps
Figure 4	Pooled_EMEUSD.m	SVAR_Baseline_REERUSD.eps
Figures 5–8	Figures5to8.do	LP_MP.pdf, LP_BS.pdf, LP_DCP.pdf, LP_GVC.pdf
Figures 9–11	Figures9to11.do	LP_feedback/, LP_GFC/, LP_commodity/ (7 files each)
Table 1	Pooled_EMEUSD.m	SummaryStats.tex
Table 2	Pooled_EMEUSD.m	FEVD_BroadUSD.tex

Online appendix.

Exhibit	Program	Output file(s)
Figure B.1	FigureB1_MICE.R	FigureB1_MICE.pdf
Figure C.1	FigureC1_Feedback.m	SVAR_Feedback.eps
Figure C.2	FigureC2_EMEYShock.m	SVAR_EMEYShock.eps
Figure C.3	FigureC3_PreGFC.m	SVAR_PreGFC.eps
Figure C.4	FigureC4_CommpAfter.m	SVAR_Commp1.eps
Figure C.5	FigureC5_CommpBefore.m	SVAR_Commp2.eps
Figure C.6	FigureC6_IndividualVARs.m	SVAR_IndVAR.eps
Figure D	FigureD_Placebo.m	SVAR_Placebo_{JP,UK,EU}.eps
Table E.1	SubgroupAnalysis.m	VarDecomp_Subgroup.tex
Figure F.1	FigureF1_ExposureGroups.do	group_{invoice,gvc,credit,mpcredibility}.eps
Figures G.1–G4	SubgroupAnalysis.m	SVAR_Subgroup_{DCP,GVC,BS,MP}.eps
Figure H.1	FigureH1_NER.do	LP_NER.pdf
Figure I.1	FigureI1_PegFloat.m	SVAR_PegFloat_USD.eps
Figures J.1–J.4	FigureJ_PegFloatChannels.do	LP_PvF_{DCP,GVC,BS,MP}.pdf,