Global Flight to Safety, Business Cycles, and the Dollar

Martin Bodenstein[*]
Pablo Cuba Borda[*]
Nils Gornemann[*]
Ignacio Presno[*]

Andrea Prestipino[*]
Albert Queralto[*]
Andrea Raffo[†]

HKIMR-ECB-BOFIT Joint Conference

January 14-15, 2025

[*] Federal Reserve Board
[†] Federal Reserve Bank of Minneapolis

Shifts in Global Sentiment

- Recent work has made progress towards understanding

  - the role of global factors for individual economies,

  - the special role of the dollar in the global financial system.

  - See Miranda-Agrippino and Rey (2020, 2022), Krishnamurthy and Vissing-Jorgensen (2012), Maggiori (2017, 2022), Gabaix and Maggiori (2015), Gopinath and Stein (2021), Jiang, Krishnamurthy, Lustig and Sun (2021), Itskhoki and Mukhin (2022), Kekre and Lenel (2021), Bodenstein, Cuba-Borda, Gornemann and Presno (2024)

- *Quantify* the importance of shifts in global sentiment and preference for dollar assets in driving macro outcomes.

  - Propose model with time variation in preferences for safe bonds.

  - Distinguish (asymmetric) GFS shocks from (symmetric) global shocks.

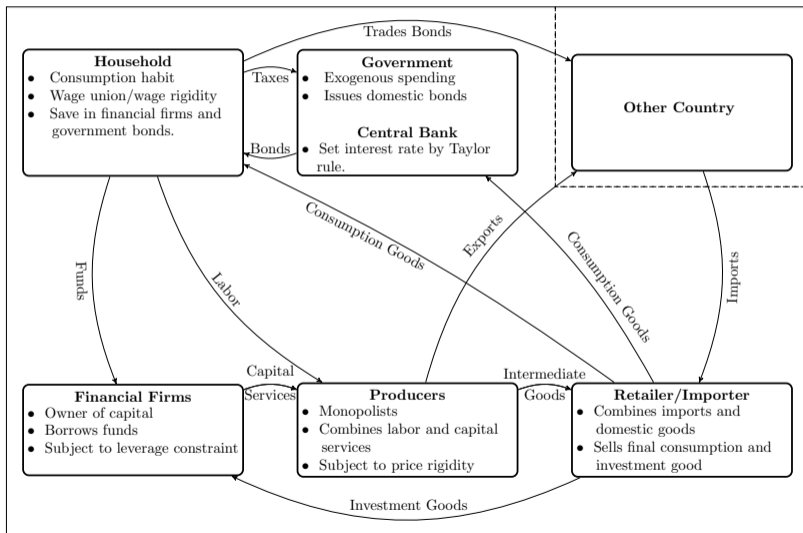 - Take medium-scale two-country DSGE model to the data.

Main Findings

   i. GFS shocks are the most important drivers of fluctuations in world GDP.
      - Explain around 30 % of variation in world GDP growth.

  ii. GFS shocks are dollar-biased
      - Increase demand of safe dollar-denominated bonds relative to foreign safe bonds.
      - Support view of safe dollar assets as a safe haven.

 iii. Global and foreign factors explain considerable share of variation of U.S. GDP growth.

  iv. Find no significant role of U.S. monetary shocks in driving foreign developments.

   v. Though modest overall, GFS shocks drive the broad real dollar during global downturns.

Introduction
00

Model
●000

Estimation
00

Drivers of Global Fluctuations
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Dollar Fluctuations and UIP
000

Overview of the Model

- 2-country medium scale DSGE model with asymmetric country size.

- International block
  - Armington aggregator of domestic and imported varieties in consumption and investment
  - Home bias in consumption and investment intermediates (ω, ω_I)
  - Import adjustment costs à la Erceg et al. (2006)
  - Import and export prices subject to transitory and permanent (markup) shocks

- New Keynesian block
  - Calvo-type rigidities in prices and wages (θ_p, θ_w)
  - LCP: Different price-stickiness for domestic retailers (θ_p) and exporters (θ_p^x)
  - Adjustment costs of investment with MEI shocks as in Justiniano et al. (2010).
  - Taylor-type rule: time-varying inflation target and output deviations from potential

- Financial block
  - Banks intermediate funds between households and firms
  - Agency problem as in Gertler and Karadi (2011)
  - Discipline financial friction using corporate spread data

Introduction
oo

Model
o●oo

Estimation
oo

Drivers of Global Fluctuations
oooooo

Dollar Fluctuations and UIP
ooo

Model Structure

Bond Preferences

Domestic households

$$\mathbb{E}_t \sum_{t=0}^{\infty} \beta^t \left\{ \log(C_t) - \psi_N \frac{\int n_t(i)^{1+\eta} di}{1+\eta} + (\zeta_t^{RP} + \zeta_t^{GFS}) U(B_{H,t}) \right\}$$

Foreign households

$$\mathbb{E}_t \sum_{t=0}^{\infty} \beta^t \left\{ \log(C_t^*) - \psi_N \frac{\int n_t^*(i)^{1+\eta} di}{1+\eta} + (\zeta_t^{RP*} + \zeta_t^{GFS}) U(B_{F,t}^*) \right.$$
$$\left. + (\zeta_t^{RP*} + (1+\gamma)\zeta_t^{GFS} + \zeta_t^{UIP}) U(B_{H,t}^*) \right\}$$

ζ^{RP}, ζ^{RP*}: risk-premium shock $\big|$ ζ^{GFS}: global flight-to-safety shock $\big|$ ζ_t^{UIP}: UIP shock

Bond Pricing and Uncovered Interest Rate Parity

RP, RP* and GFS raise demand for save assets and depress consumption, GFS does globally

$$\mathbb{E}_t \hat{c}_{t+1} - \hat{c}_t = \hat{r}_t - \mathbb{E}_t[\pi_{t+1}] + \zeta_t^{RP} + \zeta_t^{GFS}$$

$$\mathbb{E}_t \hat{c}_{t-1}^* - \hat{c}_t^* = \hat{r}_t^* - \mathbb{E}_t[\pi_{t+1}^*] + \zeta_t^{RP*} + \zeta_t^{GFS}$$

GFS and UIP appreciate real exchange rate (up is appreciation)

$$rer_t = (\hat{r}_t - \mathbb{E}_t[\pi_{t+1}]) - (\hat{r}_t^* - \mathbb{E}_t[\pi_{t+1}^*]) + \gamma \zeta_t^{GFS} + \zeta_t^{UIP} - \chi_t + \mathbb{E}_t[rer_{t+1}]$$

GFS shock is the only shock that moves both interest rates and exchange rates directly.

Data for Estimation

- 21 quarterly macro series for the U.S. and the RoW.

- RoW = trade-weighted averages of country level data. Re-weighted when data is missing.

- 12 shocks in the U.S., 11 shocks in RoW + 3 global shocks (UIP, GFS, financial).

- Estimation sample: 1985Q1-2019Q2.
    1. U.S. and ROW series: GDP, consumption, investment, inflation (GDP deflator), policy rate (Wu-Xia shadow rate during ZLB periods), 5-year corporate spreads.
    2. U.S. only series: hours gap, hourly wages, 10-year inflation expectations.
    3. Trade data: U.S. exports, U.S. imports (both quantities and prices) w/o oil and natural gas.

    4. U.S. / ROW real exchange rate.

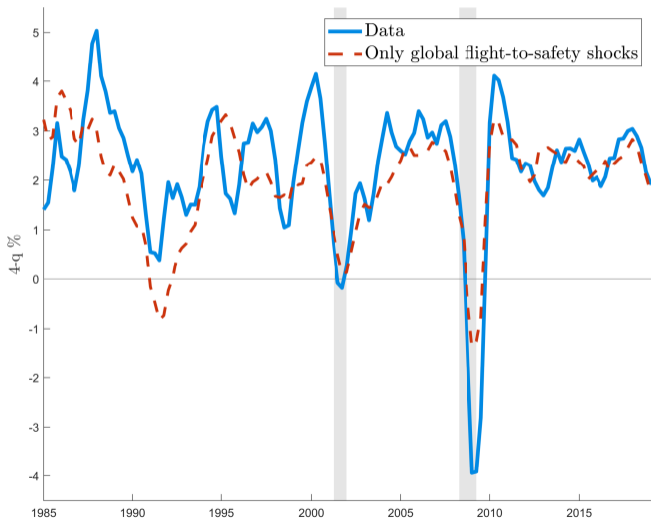- Calibration of parameters consistent with U.S. steady-state import shares.

Introduction
00

Model
0000

Estimation
0●

Drivers of Global Fluctuations
000000

Dollar Fluctuations and UIP
000

Key Structural Parameters

Table: Estimated Structural Parameters: Prior and Posterior Distributions

		Prior			Posterior	
		Distr.	Mean	SD	Mean	[10%, 90%]
θ	Home/foreign subst. elast.	B	2	0.33	1.62	[1.41, 1.85]
γ	GFS shock dollar bias	N	0	5	0.34	[0.08, 0.58]
ψ_i	Trade adj. cost	B	10	2	4.13	[2.28, 5.87]
χ	Portfolio cost	G	0.0075	0.005	0.01	[0.00, 0.01]

Note: Prior and posterior distributions for structural parameters. B: "beta."
N: "normal." G: "gamma." IG: "inverse gamma."

Introduction
oo

Model
oooo

Estimation
oo

Drivers of Global Fluctuations
●ooooo

Dollar Fluctuations and UIP
ooo

The Role of the GFS Shock in World GDP Growth

Variance Decomposition: World

	GFS	U.S. RP	Foreign RP	UIP	Monetary
World GDP growth	29.4	1.6	1.4	0	20.9
World consumption growth	32.5	4	2.8	0	24.4
World spread	79.7	0.4	0.3	0	4.9
World inflation	2	0.2	0	0	0.8
World policy rate	21.2	1.4	0.1	0	13.1
RER growth	8.6	3.5	0	37.3	14.4

Note: The table shows the variance decomposition of world variables, based on model simulations of length 500,000, drawing shock innovations from their assumed Gaussian distributions.

Introduction
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Model
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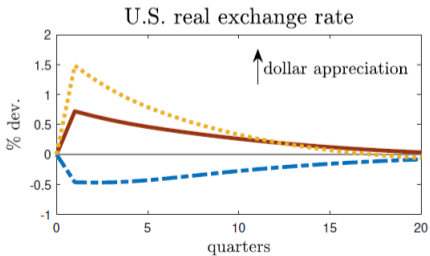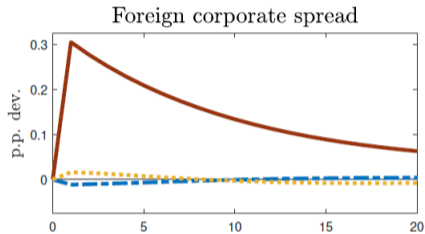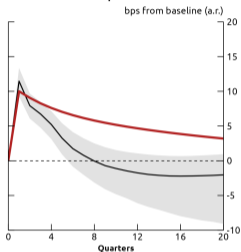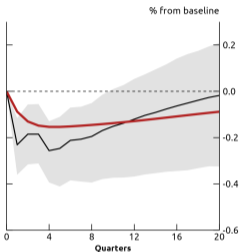
Estimation
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Drivers of Global Fluctuations
oo●ooo

Dollar Fluctuations and UIP
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Variance Decomposition: U.S.

	GFS	All foreign shocks	UIP	US RP	US monetary
U.S. GDP growth	11.5	10.2	0	11.6	12.6
U.S. consumption growth	5.4	11.6	7.0	37.3	14
U.S. spread	56.1	0.5	1.6	7.5	7.1
U.S. inflation	2.7	22.0	7.1	1.1	2.1
U.S. policy rate	14.1	1.5	0.9	8.0	13.8
U.S. RER growth	8.6	26.4	37.1	3.5	7.9

Note: The table shows the variance decomposition of U.S. variables, based on model simulations of length 500,000, drawing shock innovations from their assumed Gaussian distributions.
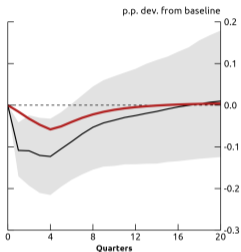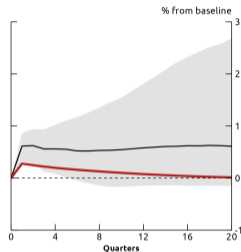
Introduction
oo

Model
oooo

Estimation
oo

Drivers of Global Fluctuations
ooo●oo

Dollar Fluctuations and UIP
ooo

Drivers of RER Movements

Introduction
oo

Model
oooo

Estimation
oo

Drivers of Global Fluctuations
oooo●o

Dollar Fluctuations and UIP
ooo

Drivers of RER Movements

U.S. corporate spread

Foreign corporate spread

U.S. real exchange rate

↑ dollar appreciation

U.S. TB/Y

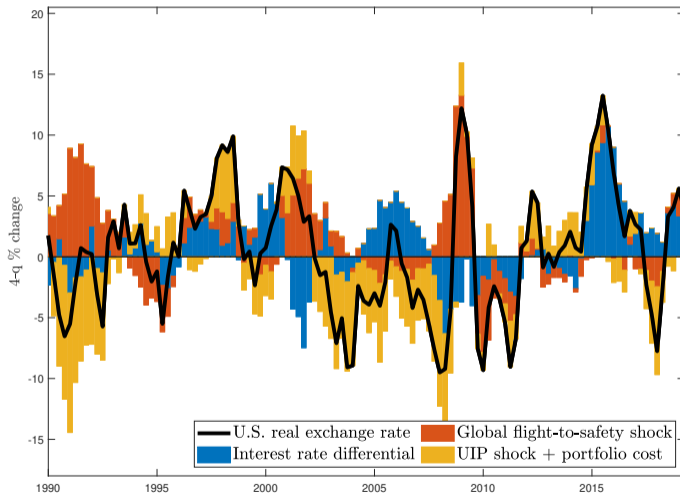quarters
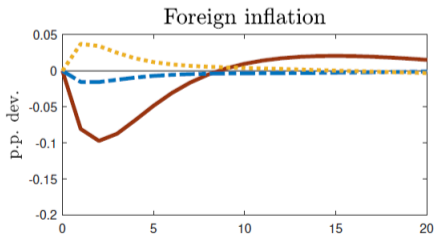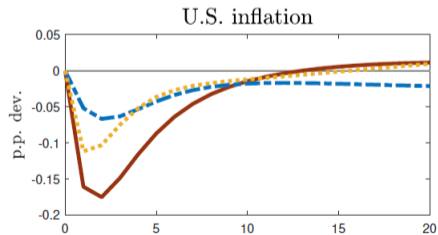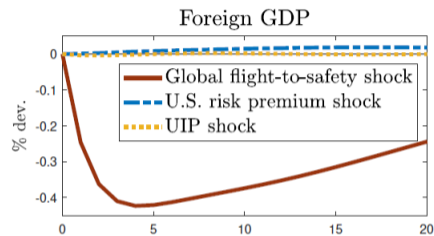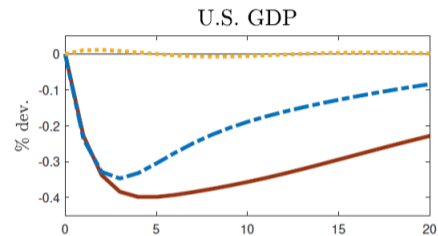
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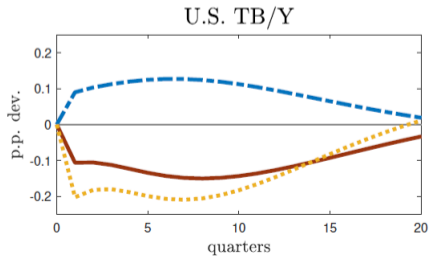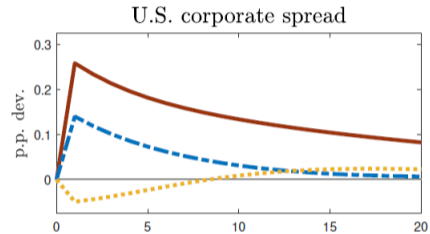
Comparison with VAR using EBP

A. U.S. 5-Year BBB Spreads
B. U.S. GDP
C. U.S. Inflation
D. Broad Real Dollar
E. Foreign 5-Year BBB Spreads
F. Foreign GDP
G. Foreign Inflation
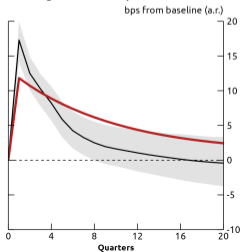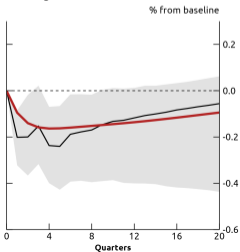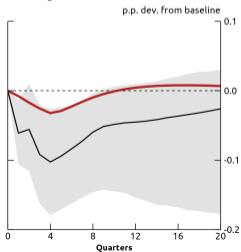
—— Estimated DSGE model
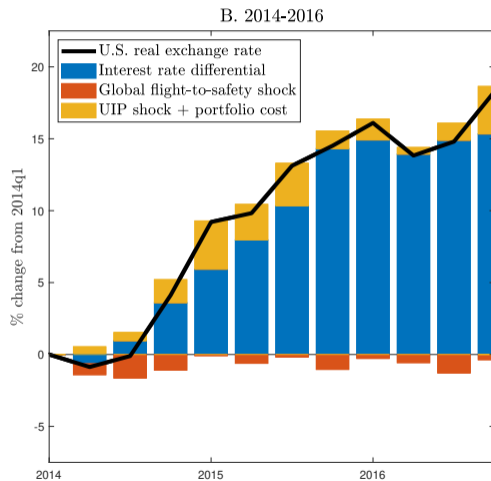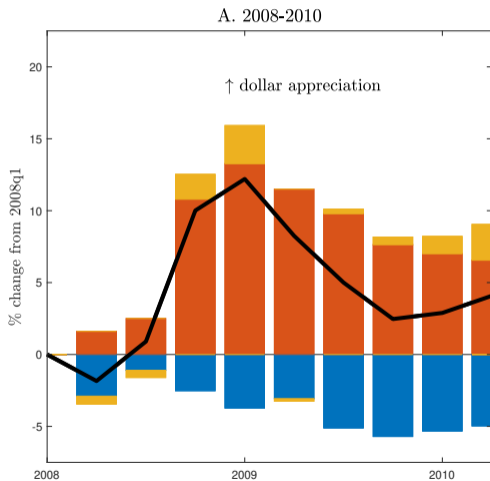
—— VAR (Median)

90% confidence interval

Introduction
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Model
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Estimation
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Drivers of Global Fluctuations
oooooo

Dollar Fluctuations and UIP
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Drivers of RER Movements

Note:4-quarter percent changes.

Drivers of exchange rate movements: Two episodes

Note: 4-quarter percent changes.

Concluding Remarks

- We develop and estimate a macro model of the world economy featuring shifts in preferences towards safe assets

- We find GFS shocks are the most important drivers of variation in world GDP
  - explain considerable fraction of fluctuations of activity in the U.S. and especially abroad

- Results are close to a VAR with identified global risk shocks (EBP)

- The large role for global factors in driving business cycles has material policy implications
  - ability of domestically-oriented policies to achieve stabilization
  - optimal design of monetary and fiscal policies
  - desirability of coordinating policies across countries