The Global Dollar Cycle

Maurice Obstfeld
University of California, Berkeley

Haonan Zhou
Princeton University

BPEA Fall 2022 Conference
September 9, 2022

Overview

- The world economy is subject to synchronized cycles in asset prices, leverage, and capital flows – a **global financial cycle**.

- The US dollar exchange rate is a key correlate, driven by
  - Global risk appetite – "flight to safety" implies dollar appreciation.
  - Global financial conditions – tighter conditions correlate with stronger dollar.
  - US monetary policy – Fed tightening implies stronger dollar.

- The global financial cycle is correlated with a **global dollar cycle**: Fluctuations in the dollar have global impact — owing to the dollar's **unique global role**.

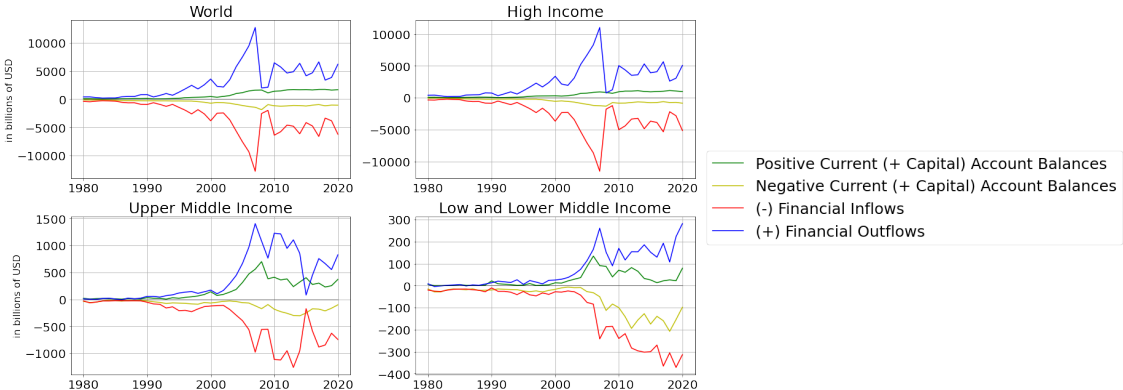
- Since 2021H1: Persistent appreciation phase of USD.
  - Expect a slowdown in global activity, with strong spillovers to EMDEs.

- Economists are reaching a deeper understanding of these forces (models + data).

What this paper does

- Overview: 50 years of floating exchange rates and the US dollar's dominant role.
  - Document dollar's strong negative correlation with global variables.
- Dollar appreciation and EMDE economic outcomes: A local-projection approach.
  - Stronger dollar: Worsening macro aggregates, terms of trade, and financial conditions.
  - State-dependency: The role of policy regimes and balance sheet exposure.
- Factors that drive dollar appreciation: Theory-consistent exchange rate regressions.
  - Importance of long-term interest rate and the dollar liquidity premium.
  - Excess bond premium (Gilchrist and Zakrajšek, 2012): Consistently strong correlate of dollar; significant impact on EMDEs.
- Current phase of the dollar cycle: An unsettled future for dollar's global role.

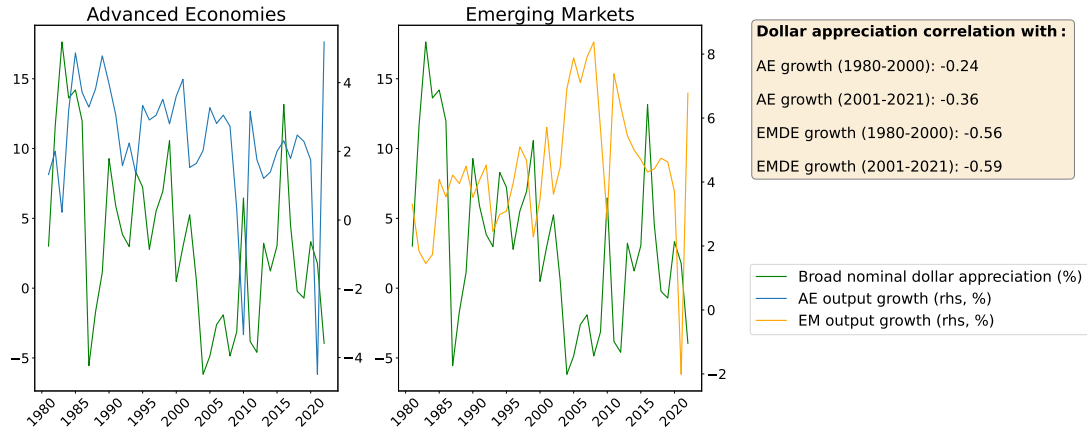
International financial markets since 1973



Global current account imbalances and financial flows, 1980-2020 (billions USD)

Source: International Monetary Fund, Balance of Payments Statistics.

A strong dollar – globally deflationary



Dollar appreciation and GDP growth in advanced and EMDE economies

Source: IMF; Federal Reserve H.10 release (FRED ticker DTWEXBGS); von Beschwitz, Collins and Datta (2019)

EMDEs are especially vulnerable

- Weaker institutions (including policy frameworks).
- Weaker policy transmission (Kalemli-Özcan (2019)).
- Market rigidities.
- Broader poverty.
- Shallower and more distorted financial markets.
- Dollar denominated liabilities (“original sin,” Eichengreen and Hausmann (1999)).
- Vulnerability to capital flow reversals (“original sin redux,” Carstens and Shin (2019)).

The dollar and EMDEs: Panel local projections

Quarterly frequency (mid-1990s to 2019, 26 EMDEs):

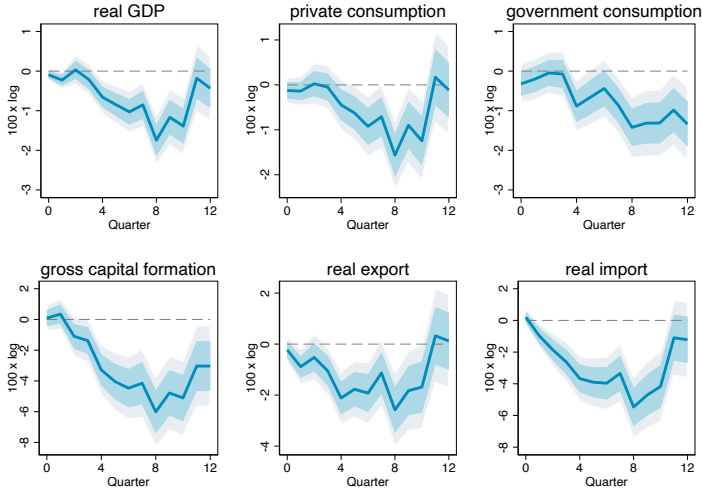
$$y_{i,t+h} - y_{i,t-1} = \mu_{i,h} + \beta_h \Delta s_t + \gamma_h' \Delta z_t + \sum_{l=1}^{p} \delta_{h,l}' \underbrace{\Delta w_{i,t-l}}_{\text{lagged controls}} + \varepsilon_{i,h,t}.$$

- y : $\begin{cases} (1) & \text{Macro aggregates } (Y, C, I, G, X, M) \\ (2) & \text{Prices, terms of trade, and bilateral exchange rates} \\ (3) & \text{Financial markets (credit, stock market, policy rate, EMBI spread)} \end{cases}$

- Δs_t: broad nominal dollar index (appreciation against *advanced economy* currencies).

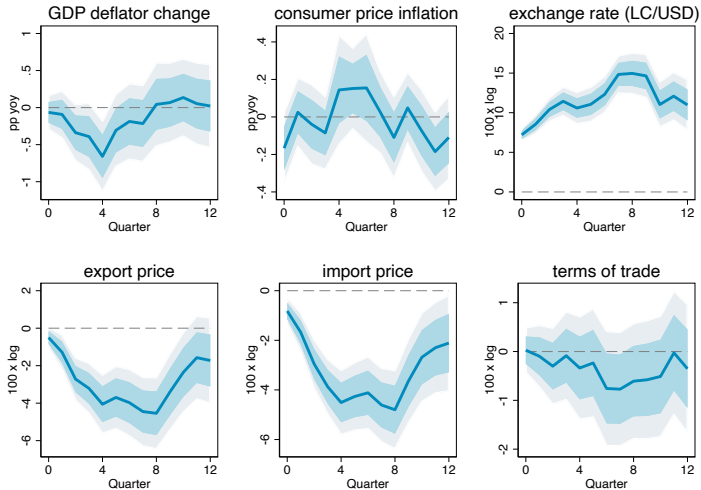
- Global controls (z_t) : $\begin{cases} (1) & \text{EM real GDP dynamic factor} \\ (2) & \text{US monetary policy and financial conditions} \end{cases}$

EMDEs' response to the dollar: Macro aggregates



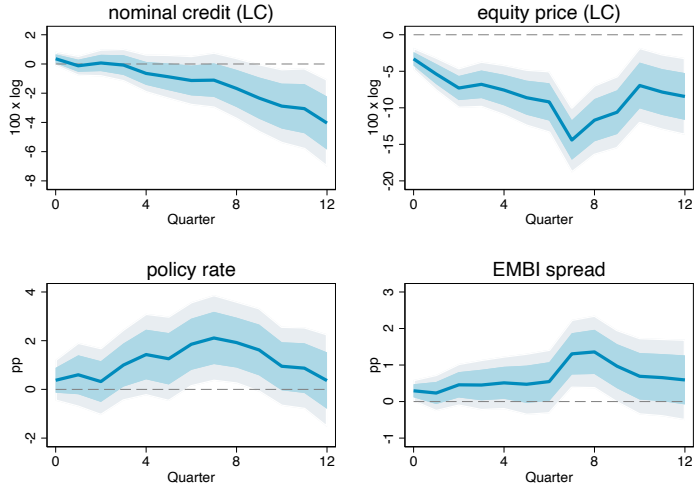
Impulse responses: 10% appreciation of AE-dollar index (68% and 90% robust CI)

EMDEs' response to the dollar: Prices and bilateral exchange rate



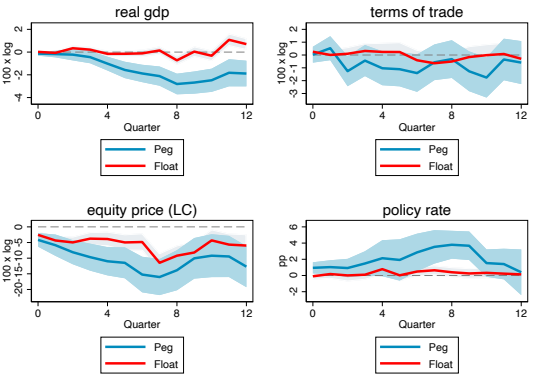
Impulse responses: 10% appreciation of AE-dollar index (68% and 90% robust CI)

EMDEs' response to the dollar: Financial markets



Impulse responses: 10% appreciation of AE-dollar index (68% and 90% robust CI)

The dollar and EMDEs: The role of exchange rate regimes



IRF: 10% appreciation of AE-dollar index
(by FX regime, 68% robust CI)

State-dependent LP:
(Ramey and Zubairy, 2018)

Cushioning dollar shocks:

- Flexible exchange rate regimes (left panel).
- Credible inflation-targeting monetary framework. ▸ IRF
- Less balance sheet exposure. ▸ IRF

Caveat: Selection bias.

Financial determinants of the dollar exchange rate

We use the modified uncovered interest parity (UIP) condition on government bond interest rates (i: US; i^*: foreign; superscript L denotes interbank LIBOR rates):

$$i_t^* - (i_t + \mathbb{E}_t s_{t+1} - s_t) = \underbrace{\rho_t}_{\text{excess return}} + \underbrace{\lambda_t^{\$}}_{\text{dollar liquidity}} + \underbrace{\gamma_t}_{\text{Govt security liquidity: } i_t^L - i_t - (i_t^{L*} - i_t^*)} .$$

Iterating forward, three empirical exchange rate equations relate Δs_t to ▸ Equations

- Gov't bond yield differential:
  - (1) Short-term yield
  - (2) Long-term zero-coupon yield, term premium
  - (3) Long-term zero-coupon yield
- US Treasury relative liquidity and the dollar: LIBOR cross-currency basis; relative LIBOR-government bond yield spread (more on these on next slide).
- Excess returns: Gilchrist and Zakrajšek (2012) excess bond premium; CBOE VIX index.

The role of covered interest parity (CIP) deviations

- G10 currencies: LIBOR dollar basis ($x_t^L = i_t^{L*} - (i_t^L + f_t - s_t)$) opens up after the GFC.
- Related concepts:
  - US Treasury basis: $x_t = i_t^* - (i_t + f_t - s_t)$, could be large even before GFC.
  - LIBOR-Treasury relative spread (Treasury relative liquidity): $\gamma_t = i_t^L - i_t - (i_t^{L*} - i_t^*)$
- Identity:

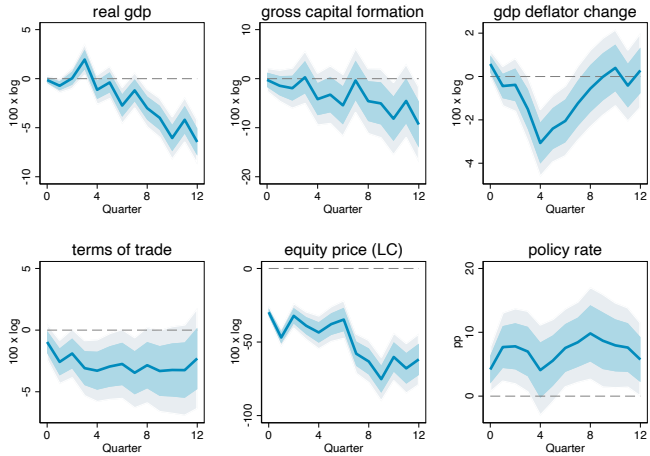
$$x_t = x_t^L + \gamma_t.$$

  - Absent financial frictions: US dollar-specific liquidity completely captured by $x_t^L > 0$.
  - Imperfect financial markets: x_t^L stands in for dollar liquidity, controlling for γ_t.
- Caveat: Two-way interaction between dollar appreciation and CIP deviations.
  - Risk appetite, exchange rate, and balance sheet constraints interact.

Dollar appreciation against G10 currencies is associated with...

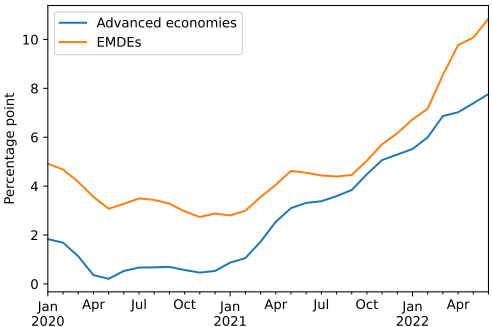
- ↑ Gov't bond yield differentials (US−foreign): both short-term and long-term.
- ↑ Treasury relative liquidity difference (γ_t, US−foreign): Only for long tenor (10-year). (Engel and Wu, 2022)
- ↑ Short-term and long-term LIBOR dollar basis (x_t^L) / Treasury basis (x_t), with different coefficients. (Jiang, Krishnamurthy and Lustig, 2021)
- ↑ Excess bond premium. ▸ Recent evolution
- Real exchange rate appreciation: Slow mean reversion.
- Considerable in-sample fit, stronger after the GFC. (Lilley, Maggiori, Neiman and Schreger, 2022)

Excess bond premium shocks and EMDE outcomes

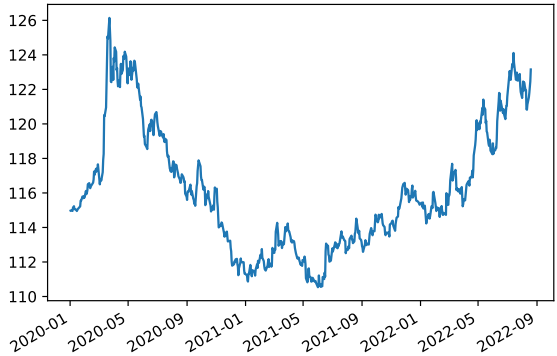


Impulse responses: 2.5pp increase of Gilchrist and Zakrajšek (2012) excess bond premium (68% and 90% robust CI)

Current phase: High inflation and a strong dollar

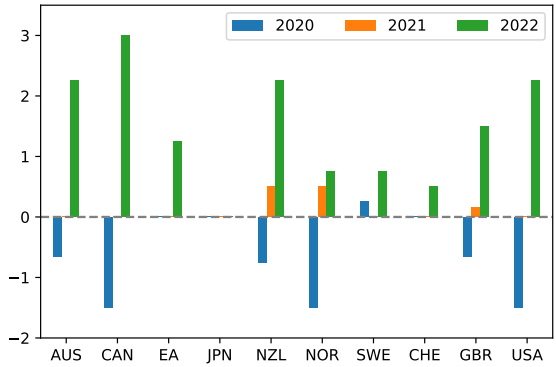


Global CPI inflation (pp, year-on-year)

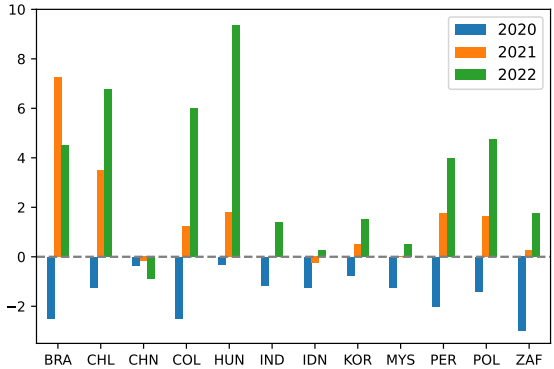


Broad nominal dollar index (2016 = 100)

Current phase: Global tightening of policy rates



Advanced economies (EA=Euro Area)

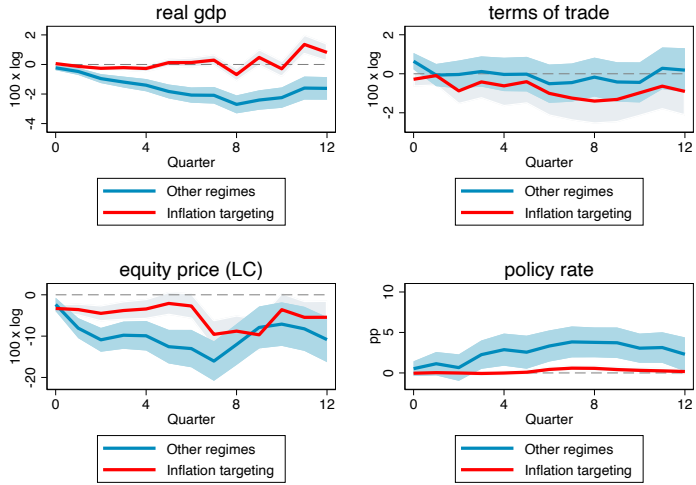


Emerging markets

Year-on-year change in policy interest rate (pp), as of September 8th.

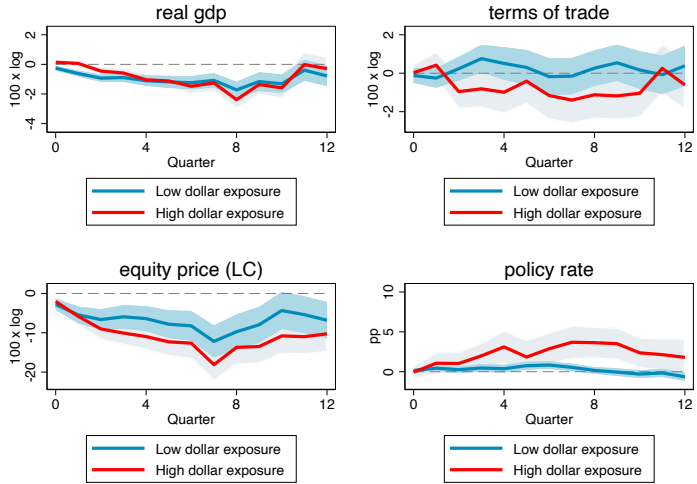
APPENDIX

The dollar and EMDEs: The role of monetary regimes



Impulse responses: 10% appreciation of AE-dollar index (68% robust CI) ▸ Back

The dollar and EMDEs: The role of external balance sheet exposure



Impulse responses: 10% appreciation of AE-dollar index (68% robust CI) ▸ Back

Empirical exchange rate equations

1. Short-term yield:

$$\Delta s_t = \alpha + \beta_1 \Delta \left(i_t - i_t^* \right) + \beta_2 \Delta \rho_t + \beta_3 \Delta \lambda_t^{\$} + \beta_4 \Delta \gamma_t + \mathbf{X}_{t-1} \delta + \varepsilon_t,$$

2. Long-term (k-year) zero-coupon yield, term premium:

$$\Delta s_t = \alpha + \beta_1 k \Delta \left(i_t^{(k)} - i_t^{(k)*} \right) + \beta_2 k \left(\tau_t^{(k)} - \tau_t^{(k)*} \right) + \beta_3 \Delta \rho_t + \beta_4 \Delta \lambda_t^{\$} + \beta_5 \Delta \gamma_t + \mathbf{X}_{t-1} \delta + \varepsilon_t$$

3. Long-term (k-year) zero-coupon yield only:

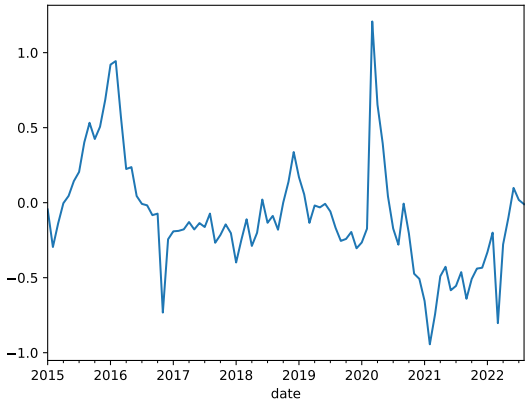
   (with long-term dollar basis, liquidity returns)

$$\Delta s_t = \alpha + \beta_1 k \Delta \left(i_t^{(k)} - i_t^{(k)*} \right) + \beta_2 k \Delta \rho_t^{(k)} + \beta_3 k \Delta \lambda_t^{(k)\$} + \beta_4 k \Delta \gamma_t^{(k)} + \mathbf{X}_{t-1} \delta + \varepsilon_t.$$

- Monthly panel of G10 currencies.
- Overlapping quarterly (3-month tenor) / yearly (1-year tenor) changes.

Back

Excess bond premium: Recent evolution



March 2020: 1.21; Jul 2022: 0.02; Aug 2022: -0.01.

Average (1973-current): 0.06; (2015-current): -0.09.

Back