Global Financial Cycles

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Global Financial Cycles

- Fluctuations in financial activity (risk taking, credit creation, asset prices, capital flows, spreads, leverage) on a global scale (Bruno and Shin (2015), Miranda-Agrippino and Rey (2015), Baskaya et al. (2017)).

- Particularly interesting to link the Global Financial Cycle to issues of financial stability (waves of crises) and to constraints it puts on monetary policy.

- Dilemma versus trilemma: monetary conditions (including spreads, price of risk) are affected by the centre country(ies) even under floating rates (Rey (2013, 2016)).

- Low real rates and zero lower bound: important constraint for most advanced economies (Global Real Rates: A Secular Approach (Gourinchas and Rey, 2016)).
Ex-ante real yields on U.S. Treasury Securities constructed using median expected price changes from the University of Michigan's Survey of Consumers. Source: FRED.
The figure reports the annualized ex-post real 3-month interest rate for the U.S. since 1871.

Global Real Rates: A Secular Approach

Empirical approach using the world budget constraint and historical data.

- Law of accumulation of wealth for the world (closed economy):
  \[ \bar{W}_{t+1} = \bar{R}_{t+1}(\bar{W}_t - C_t) \]

- Log-linearize around the steady-state consumption-wealth ratio and derive the world's intertemporal budget constraint:
  \[ \ln \frac{C_t}{\bar{W}_t} \approx E_t \sum_{s=1}^{\infty} \rho_s^w \left( \bar{r}_t^w - \Delta \ln C_{t+s} \right) \]

- Present value relation:
  \[ \ln \frac{C_t}{W_t} \approx E_t \sum_s \rho_s^w r_{t+s}^f + \nu E_t \sum_s \rho_s^w r_{t+s}^p - E_t \sum_s \rho_s^w \Delta \ln C_{t+s} + \epsilon_t \]
  \[ \equiv cW_t^f + cW_t^p + cW_t^c + \epsilon_t \]
The figure decomposes the fluctuations in \( \ln(C/W) \) around its mean into a risk-free component \((cW^f)\), an excess return component \((cW^{rp})\) and a consumption growth component \((cW^c)\).
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Decomposing the Global Consumption/Wealth Ratio

The figure decomposes \( \ln(C/W) \) into a risk-free component \( (c_w^f) \), an excess return component \( (c_w^{rp}) \) and a consumption growth component \( (c_w^c) \).
Results

- Very good fit of the VAR

- Most of the movements in the consumption-wealth ratio reflect expected movements in the future risk-free rate

- Consumption-wealth ratio today contains significant information on future real rates.

- This is not a causal decomposition: the risk free and risky returns as well as consumption growth are endogenous and interdependent.
Interpretation

▶ Most of the action is in the joint dynamics of the consumption wealth ratio and the risk free rate.

▶ Plausible interpretation:
  ▶ Large financial crises (in 1929 and in 2008) lead to deleveraging (increased savings and lower consumption) for an extended time and to low real rates.
  ▶ Therefore low consumption wealth ratios tend to be associated with expected low real rates.

▶ This is consistent with the important role of debt overhang effects and credit dynamics, (Schularick and Taylor (2013), Reinhart and Rogoff (2014), Mian, Sufi and Verner (2015) and a global financial boom/bust cycle (Miranda-Agrippino & Rey (2015))).
An Aside: Predicting Global Real Risk-free Rates

The figure forecasts the 10-year average future short risk-free rate using $\ln(C/W)$. Graph includes 2 standard deviation bands.

**2011-2021 forecast:** −1.3%
Global Financial Cycle and Risky Asset Prices

- Large panel of risky returns around the world.

- We test for the number of global factors.

- The data cannot reject the existence of one and only one global factor. That single factor explains about a quarter of the variance of the data.
Global Factor in World Asset Prices.

![Graph showing Global Common Factor from 1975 to 2010 with two lines representing 1990:2012 and 1975:2010 periods.](image_url)
Figure: Decomposition of the global factor in a volatility component and a risk aversion component; the measure of realized monthly global variance is computed using daily returns of the MSCI world index.
Share of Banking Flows in Cross-Border Flows

[Graph showing the share of banking flows in cross-border flows from 1992 to 2010, with categories including Portfolio, FDI, Debt, and Bank.]
Dilemma versus trilemma: monetary conditions (including credit creation, price of risk) are affected by the centre country(ies) even under floating rates.

We estimate a Bayesian VAR (in levels) with 4 lags. Typical set of macroeconomic variables, including output, inflation, investment and labor data PLUS global credit, cross border credit flows, financial leverage, global factor in asset prices, term spread (25 variables)

The monetary policy shock is identified using the effective federal funds rate as the instrument for monetary policy and (i) block-ordering the variables into slow-moving and fast-moving ones; (ii) using the Romer and Romer narrative approach as instrument (also experimented with high frequency instruments).
Response of domestic Business Cycle

Figure: Response of Business Cycle (% points) to a monetary policy shock inducing a 100bp increase in the Effective Fed Funds Rate.
Response of Global Asset Prices

Figure: Response of Asset Prices (% points) to a monetary policy shock inducing a 100bp increase in the Effective Fed Funds Rate.
Figure: Response of Global Credit (% points) to a monetary policy shock inducing a 100bp increase in the Effective Fed Funds Rate.
Figure: Response of Global Credit (% points) to a monetary policy shock inducing a 100bp increase in the Effective Fed Funds Rate.
Response of Banks Leverage in the US, Euro area, UK (GSIBs)

**Figure:** Response of Banking Sector Leverage (% points) to a monetary policy shock inducing a 100bp increase in the Effective Fed Funds Rate.
Conclusions

- We use historical data to understand determinants of long run real rates.

- Empirical evidence consistent with global financial boom/bust cycle. Euphoria pre-crisis leads to rapid increase in wealth (1920s, 1990s-2000s). This is followed by deleveraging post crisis (1929, 2008).

- We use a medium scale BVAR to understand the influence of US monetary policy on the global financial cycle.

- US monetary policy is a determinant of global monetary and financial conditions. This puts in question one leg of the Mundellian Trilemma.


- My view: Models with heterogenous intermediaries and moral hazard (risk-taking not properly priced) are what we need.
References

▶ Baskaya, Yusuf Soner, di Giovanni, Julian, Kalemli-Ozcan, Sebnem and Mehmet Fatih Ulu (2017) “International Spillovers and Local Credit Cycles” NBER WP No. 23149


▶ Gourinchas Pierre-Olivier and Helene Rey (2016) “Global Real Rates: A secular Approach” LBS and Berkeley mimeo


