Global Financial Cycles

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Robert A. Mundell Distinguished Address
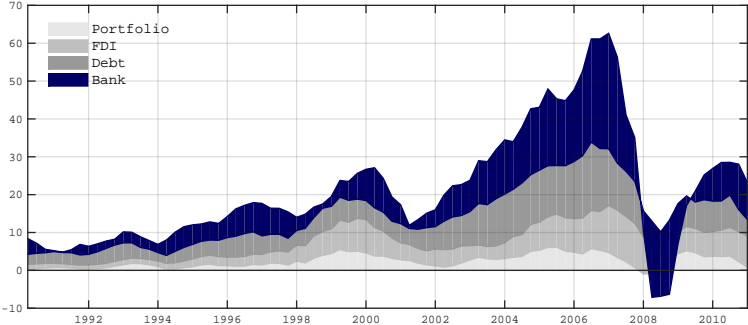
Global Financial Cycles

- 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)).

- Particularly interesting to link the Global Financial Cycle to issues of financial stability (waves of crises; see Reinhart Rogoff (2008)) and to constraints it puts on monetary policy.

Global Financial Cycles and Monetary Policy

▶ **Dilemma versus trilemma**: Impossible to have at the same time an independent monetary policy, a fixed exchange rate regime and free capital mobility.

▶ Corollary: It is in theory possible to have a fexible exchange rate and an independent monetary policy in a world of capital mobility.

▶ But in practice, monetary conditions (including spreads and price of risk) are affected by the centre country(ies) even under floating rates (Jackson Hole Symposium, (2013), IMF Mundell Fleming Lecture, (2016)).

▶ Countries face a dilemma: either have an independant monetary policy or have free capital mobility. Even under a floating exchange rate regime, a country needs either capital controls or macroprudential policies to pursue an independent monetary policy.

Cross-Border Flows

# US Monetary Policy and the Global Financial Cycle

▶ **Dilemma versus trilemma**: US monetary policy has an effect not only on US monetary and financial conditions but also on the rest of the world.

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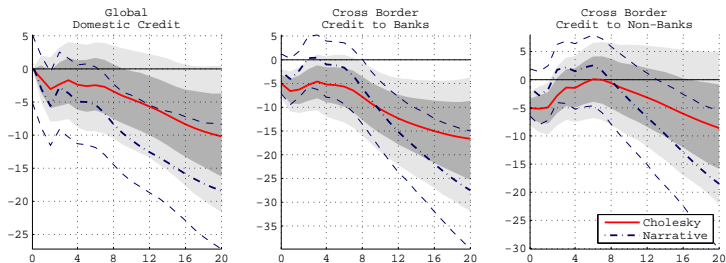
Response of domestic Business Cycle
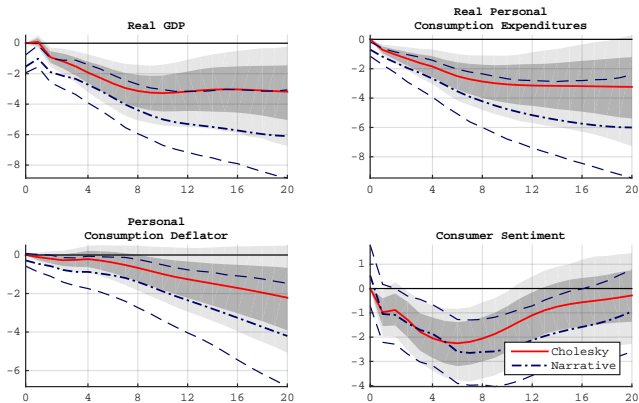
Figure: Response of Business Cycle (% points) to a monetary policy shock inducing a 100bp increase in the Effective Fed Funds Rate.

Response of Global Credit, with and without US
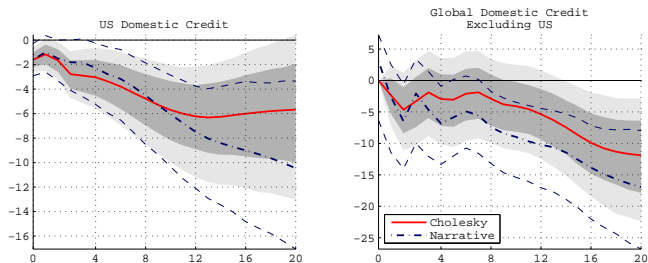
Figure: Response of Global Credit (% points) to a monetary policy shock inducing a 100bp increase in the Effective Fed Funds Rate.
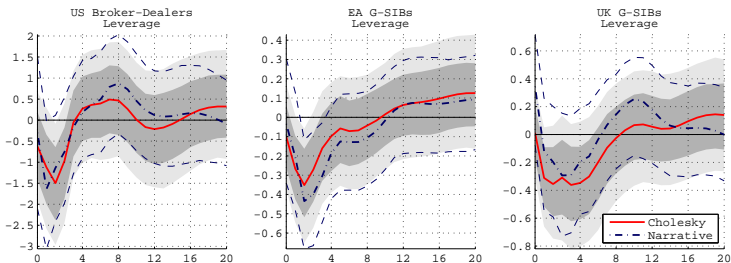
Response of Global Credit and of Cross Border Credit

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.

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.
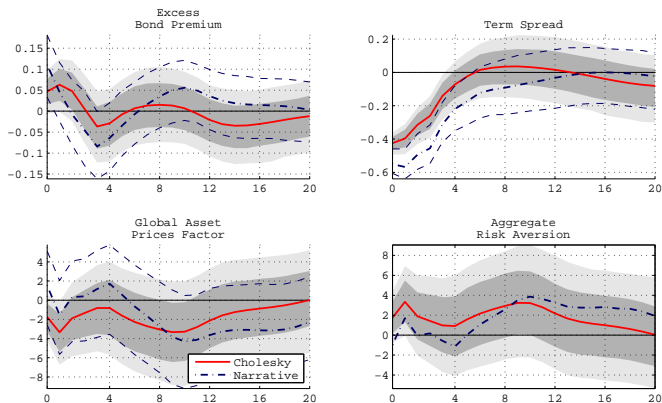
Global Factor in World Asset Prices.

Global Common Factor

Volatility Component and Aggregate Risk Aversion
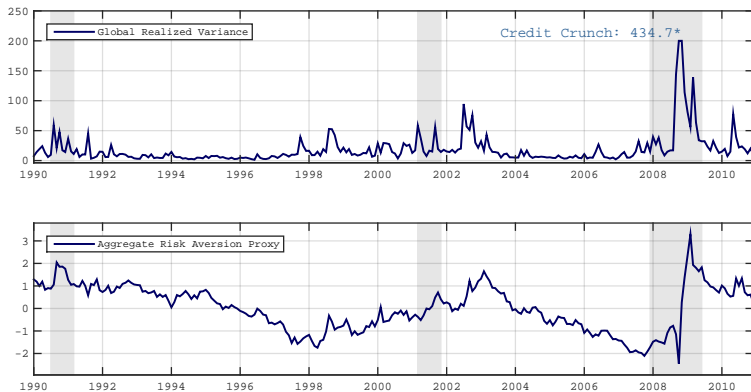
Figure: Decomposition of the global factor in a volatility component and a risk aversion component; the measure of realized monthly global variance is computed using daily returns of the MSCI world index.

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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.

Global Financial Cycles

- US Dollar is the currency of the hegemon in the international monetary system. It is a currency widely used in banking as well as in international trade.

- US monetary policy has a significant effect on monetary and financial conditions outside the US. (Miranda-Agrippino and Rey, 2015: US Monetary Policy and the Global Financial Cycle).

- In particular it has a direct effect on Euro area and UK global banks leverage and on credit creation worldwide.

- These large financial financial areas with floating exchange rates are not insulated from US monetary policy.

Global Financial Cycles

- Another important constraint on monetary policy is the zero lower bound.

- Most advanced economies have low real rates. There is considerable controversy regarding the reason for these low rates. We argue in Global Real Rates: A Secular Approach (Gourinchas and Rey, 2016) that financial cycles constitute an explanation for these low rates.
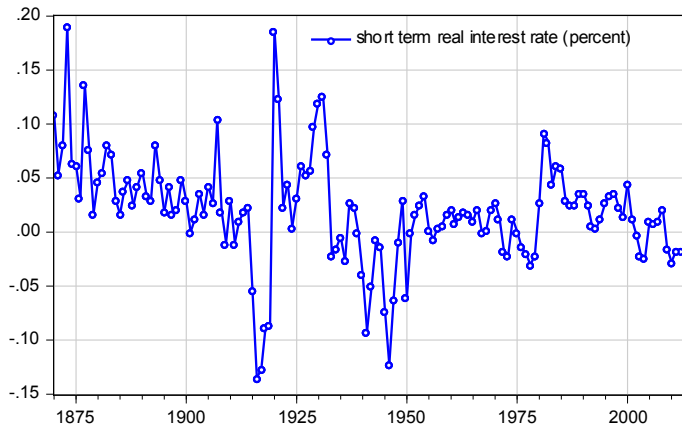
U.S. Real Rates
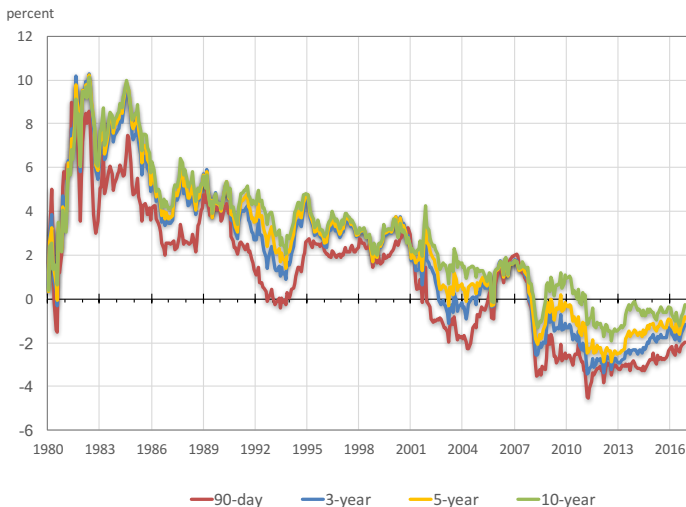
Ex-ante real yields on U.S. Treasury Securities constructed using median expected price changes from the University of Michigan's Survey of Consumers. Source: FRED.

'Historical' U.S. Real Rates, 1871-2011

The figure reports the annualized ex-post real 3-month interest rate for the U.S. since 1871.

Source: Jordà et al (2016).

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:

$$\ln C_t / \bar{W}_t \simeq \mathbb{E}_t \sum_{s=1}^{\infty} \rho_w^s \left(\bar{r}_{t+s}^w - \Delta \ln C_{t+s} \right)$$
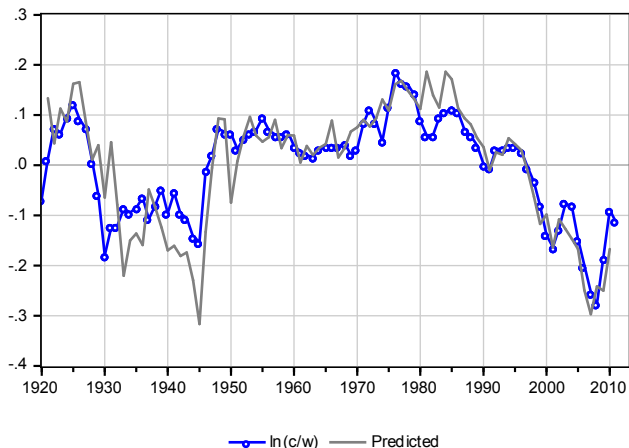
- Present value relation:

$$\ln C_t / W_t \quad \simeq \quad \mathbb{E}_t \sum_s \rho_w^s r_{t+s}^f \quad + \nu \mathbb{E}_t \sum_s \rho_w^s rp_{t+s} \quad - \mathbb{E}_t \sum_s \rho_w^s \Delta \ln \mathbf{C_{t+s}} \quad + \varepsilon_t$$

$$\equiv \quad cw_t^f \quad\quad\quad + cw_t^{rp} \quad\quad\quad + \mathbf{cw_t^c} \quad\quad\quad + \varepsilon_t$$
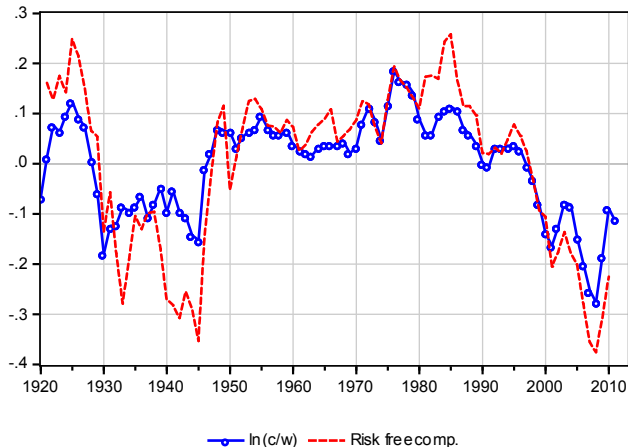
Global Consumption/Wealth Ratio: Hansen and Summers

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 ($\mathbf{cw^c}$).

Decomposing the Global Consumption/Wealth Ratio

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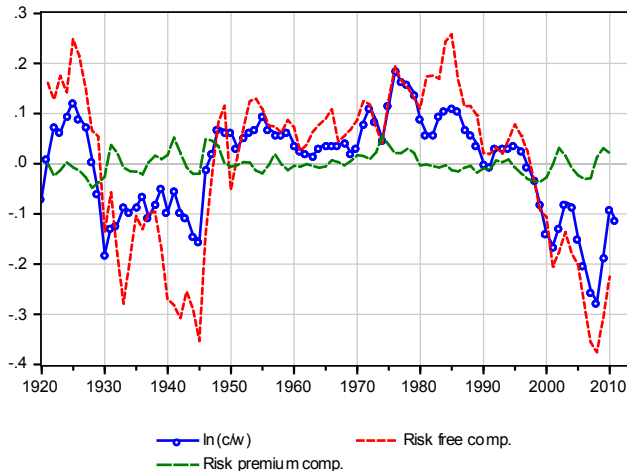

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Decomposing the Global Consumption/Wealth Ratio

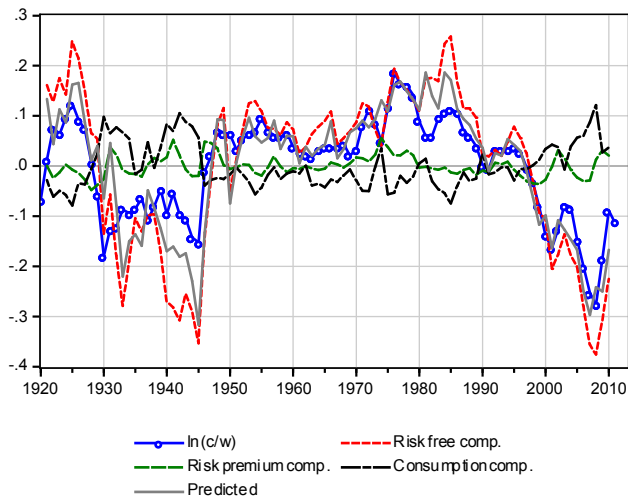

The figure decomposes $\ln(C/W)$ into a risk-free component (cw^f), an excess return component (cw^{rp}) and a consumption growth component ($\mathbf{cw^c}$).

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:
  - 'Irrational exuberance' in asset prices ('Roaring 20s' and the 'Exuberant 1990-2000s') leads to fast growing financial wealth and fast declining consumption-wealth ratios.
  - 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

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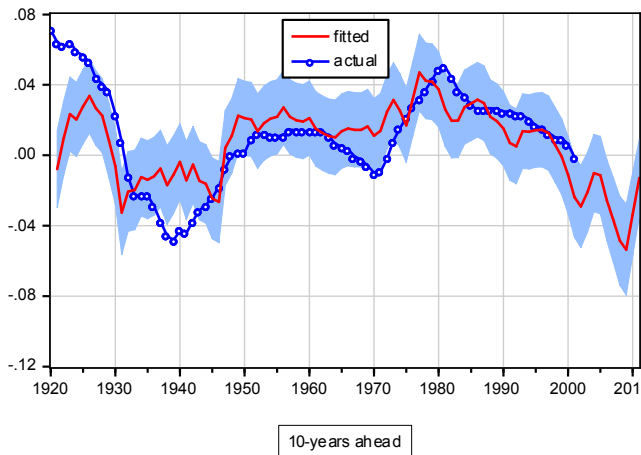
The figure forecasts the 10-year average future short risk-free rate using $\ln(C/W)$. Graph includes 2 standard deviation bands.

2011-2021 forecast: -1.3%

Conclusions

▶ Dilemma versus Trilemma: 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.

▶ Low Real Rates: 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).

Research agenda

- Global Financial Cycle: source, propagation, amplification mechanisms, endogenous risk build ups.

- Macro-finance models have little to say about the endogenous boom phase of the cycle.

- Quantity of credit goes up and risk is not priced. Challenge for most theories. Roaring 1920s. Exuberant 2000s.

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

- In Coimbra and Rey (2017): Financial Cycles with Heterogenous Intermediaries we have a heterogeneity in risk taking ability. More risk taking agents have biggest market share during boom times. Risk premium is low. They concentrate macro risk. Skewness of the leverage distribution of the intermediaries is time varying. More risk taking when funding costs are low.

Financial Cycle with Heterogeneous Risk-taking

Cross-sectional skewness and real R
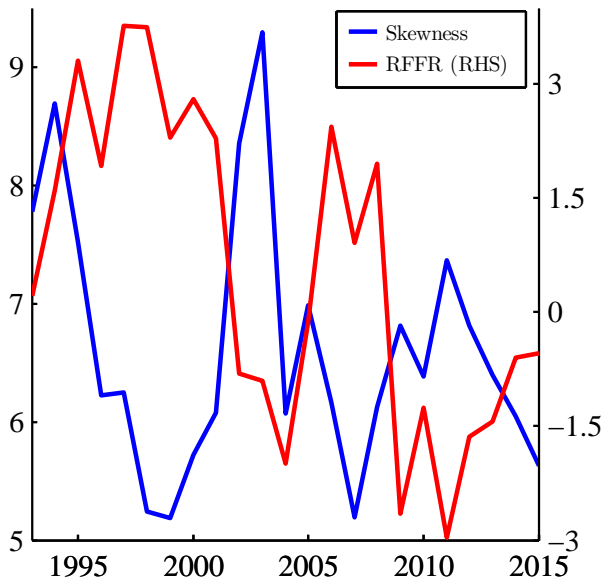
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