Global Trends in Interest Rates

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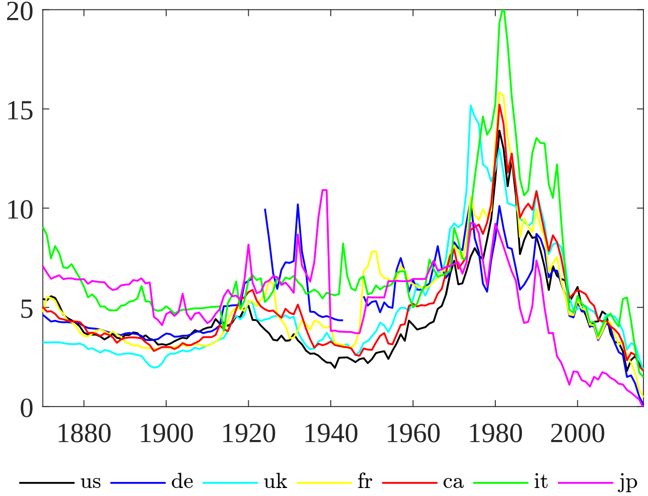
Global Interest Rates Are at Historical Lows



Low Global Rates: the Questions

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To address these questions

- Estimate the trend in the world real interest rate and some of its drivers with data from 7 advanced economies since 1870, from the JST macrohistory database

Estimating Trends

- A VAR with common trends (Stock and Watson, 1988)

$$y_t = \Lambda \bar{y}_t + \tilde{y}_t$$

- y_t are $n \times 1$ observables, $\bar{y}_t$ are $q \times 1$ *trends*

$$\bar{y}_t = \bar{y}_{t-1} + e_t$$

- $\tilde{y}_t$ are *stationary components* that follow an *unrestricted* VAR

$$\Phi(L)\tilde{y}_t = \varepsilon_t$$

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- Bayesian estimation
- Use theory to restrict Λ and interpret resulting trends
    - Restrictions across variables *and* countries

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- S_t : nominal exchange rate (\$/€)

The World Real Interest Rate: Trends

- Stationary higher moments $\Rightarrow$ use linear approximation for trends

$$\overline{R}_t^{\$} - \overline{\pi}_t^{\$} = \overline{m}_t^{US}$$
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- $\overline{m}_t^w$ is a common factor: the trend world real interest rate $\overline{r}_t^w$

Convenience Yields

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CY↑ ⇒ interest rates on safe/liquid assets ↓ globally

Global Trends in Interest Rates

- In the long run

$$\overline{R}_{c,t} = \overline{\pi}_{c,t} + \overline{m}_t^w - \overline{cy}_t \qquad - \overline{\Delta q}_{c,t}$$

for $c = 1, \ldots, 7$ countries

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- Include country specific trend in convenience $\overline{cy}^i_{c,t}$: German bunds are not Italian BTPs
  - Also captures other long run deviations from no arbitrage

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- Include country specific trend in convenience $\overline{cy}_{c,t}^i$: German bunds are not Italian BTPs
  - Also captures other long run deviations from no arbitrage
- Impose $\overline{\Delta q}_{c,t} = 0$: *change* in RER is stationary
  - Deviations from PPP are allowed

Model I: $\bar{r}_t^w$ and the Global Trend in Convenience

Observables (1870-2016)		Trends
Inflation	$\pi_{c,t}$	
Short term rates	$R_{c,t}$	
Long term rates	$R^L_{c,t}$	

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- $\overline{cy}_{c,t}^i$ identified from cross-section as c-specific idiosyncratic factor

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Long term rates	$R_{c,t}^L$		$+\overline{ts}_t^w + \overline{ts}_{c,t}^i$

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Long term rates	$R_{c,t}^L$		$+\overline{ts}_t^w + \overline{ts}_{c,t}^i$
US Baa yield	$R_{US,t}^{Baa}$	$\bar{\pi}_{US,t} + \overline{m}_t^w$	$+\overline{ts}_t^w + \overline{ts}_{US,t}^i$

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- Baa corporate bonds offer no safety/liquidity, as in KVJ

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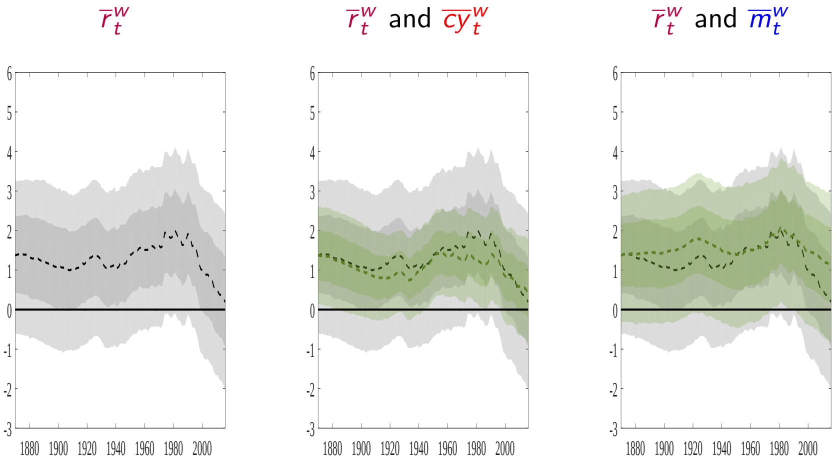
Long term rates	$R^L_{c,t}$		$+\overline{ts}^w_t + \overline{ts}^i_{c,t}$
US Baa yield	$R^{Baa}_{US,t}$	$\bar{\pi}_{US,t} + \overline{m}^w_t$	$+\overline{ts}^w_t + \overline{ts}^i_{US,t}$

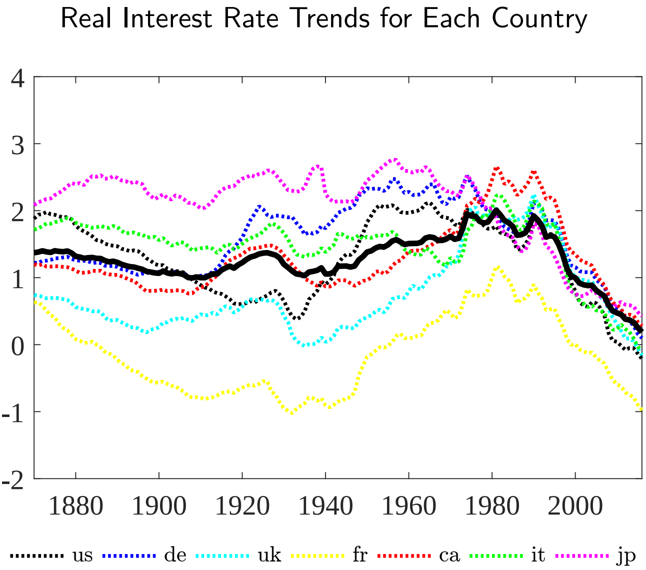
US Baa spread $R^{Baa}_{US,t} - R^L_{US,t}$ $\overline{cy}^w_t + \overline{cy}^i_{US,t}$

- $\overline{cy}^i_{c,t}$ identified from cross-section as c-specific idiosyncratic factor
- Baa corporate bonds offer no safety/liquidity, as in KVJ
- US Baa spread identifies $\overline{cy}^w_t$, given $\overline{cy}^i_{US,t}$

Results: $\overline{r}_t^w$ and Its Drivers



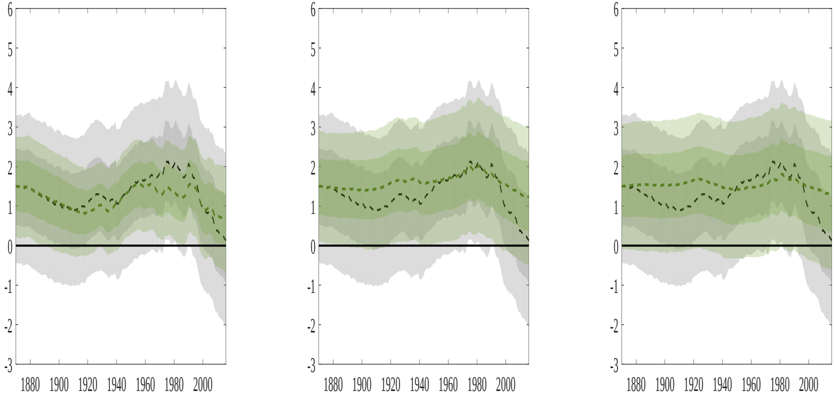
Results: Global Convergence since the 1970s



A Model with Consumption

- Use data on consumption growth to decompose $\overline{m}_t^w = \overline{g}_t^w + \overline{\beta}_t^w$
  - $\overline{g}_t^w$: global growth factor

$\overline{r}_t^w$ and $\overline{cy}_t^w$ | $\overline{r}_t^w$ and $\overline{g}_t^w$ | $\overline{r}_t^w$ and $\overline{\beta}_t^w$



Summary: Change in $\overline{r}_t^w$ in the Consumption Model

	1980-2016	1980-1997	1997-2016
$\overline{r}_t^w$	-1.93^{***}	-0.70^{*}	-1.22^{***}
	$(-3.18, -0.69)$	$(-1.56, 0.19)$	$(-2.18, -0.29)$
$-\overline{cy}_t^w$	-0.71^{*}	-0.07	-0.65^{**}
	$(-1.51, 0.11)$	$(-0.66, 0.52)$	$(-1.25, -0.02)$
$\overline{g}_t^w$	-0.74^{**}	-0.40^{*}	-0.35
	$(-1.50, -0.03)$	$(-0.89, 0.08)$	$(-0.88, 0.19)$
$\overline{\beta}_t^w$	-0.47	-0.22	-0.24
	$(-1.21, 0.31)$	$(-0.73, 0.30)$	$(-0.78, 0.30)$

Conclusions

- The trend in the world real interest rate declined by about 200 bps in the past 3-4 decades, after fluctuating around 2% for a century
- The convenience yield for safe/liquid assets is a key driver of this decline, especially since the mid 1990s
- Lower global growth is a second crucial factor, starting around 1980