

Capital Flow Cycles and the Case of the Missing Defaults

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(partly based on ongoing work with Vincent Reinhart,
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Roadmap

- Data and approach
- Capital flow cycles—a long view
- Financial conditions in the global financial centers
- The current cycle and “missing defaults”

What we do

- Construct a comprehensive data base on cross border flows back to 1815
- Date turning points in the global capital flow cycle, in the Burns and Mitchell, Harding and Pagan approach. Features of the cycles are documented.
- Role of external factors financial and through commodity markets—an expanded version of Calvo, Leiderman, and Reinhart (1993). Unlike the recent literature, we do not include the VIX or focus on gross flows (post WWI).
- Study the interaction among these global cycles and their connection to sovereign default and global capital mobility. Explore time variation in those interactions.

What we do (continued)

- Construct (this is not complete) a more comprehensive (beyond short and long rates) profile of financial center conditions to incorporate the impacts of regulatory changes and debt management practices and consider secondary financial centers (Japanese banks in Kaminsky and Reinhart, 2000 and 2001 and UK and Euro area banks, Cerutti, Claessens, and Ratnovski, 2017).
- Highlight the particulars of individual episodes.
- Compare the current capital flow cycle to its historical counterparts.

Is there a global financial cycle?

There is a global cycle in capital flows

- When observed over a long period and many countries, with identifiable peaks and troughs--we count 14 such cycles from 1815.
- The “mega-cycles in capital flows” are connected to global capital mobility.

There is a global cycle in real commodity prices

- Despite considerable variation across individual commodities. Commodity price cycles occur more often (22 cycles) but large ones are rarer.

There is a cycle in the stance of policy at the global financial centers

- That are evident in the peaks and troughs of real short-term interest rates of dominant economies. But the policies also involve manipulating the central bank balance sheet, managing sovereign debt, and determining regulatory standards
- But there may be multiple centers with uneven regional influence, and they vary over time

Summary of main findings

Is there a global financial cycle?

These cycles combine to influence finance around the world

- The impact of financial center interest rates on capital flows depends on the extent of capital market integration at the time (both globally and at the level of the capital importer).
- Comovement: It is suggestive that two factors explain about $\frac{1}{2}$ the variation in “global” flows (our priors did not suggest a single global factor) Reducing these global factors to a single indicator of the “global financial cycle” and a single “push” factor consistently influencing finance is expecting too much.

Other highlights of our findings

- International capital flow cycles have displayed similar patterns over the past 200 years. The magnitudes of the booms are comparable to the busts while booms last longer than the often abrupt busts (9 years versus 5 years)
- The cross-country “incidence” of capital inflows (and reserve accumulation) suggests the cycle has become more global or inclusive
- Real interest rates were 4-to-10 times as volatile pre-WWII as in the more modern era and cycles were distinctly differ. Nominal rates were far more stable and “cyclical” in the 19th century.
- Capital flow and commodity flow booms often overlap with lower interest rates in the financial center. These “triple bonanzas” are often followed by “triple busts” and rising defaults. All of the six major spikes in new defaults (1800-2016) occurred after a global capital inflow bonanza ended.
- The connection of sovereign defaults with commodity cycles is not as systematic as with capital flows.
- All but 2 (1890s and the present one) of the double busts in commodities and capital flows overlapped with a spike in “global” interest rates.

The Global Capital Flow Database, 1815-2016

1918 - 2016: net flows using current account (CA) and reserves (gold and FX)

Construct capital account from BOP identity:

$$CA + KA + \Delta RA \equiv 0$$

- Interwar: UN / League of Nations data for 34 countries
- Post-WW2: own constructed series for 61 capital-importing countries and 7 capital exporters (some series back to 1800s)
- Eurozone post-1999: incorporate Target2 as reserves to capture within-EZ capital flows

1815-1914: gross flows based on bond issuance

- 1869-1914: UK capital exports to 25 countries Stone (1999)
- 1815-1868: sovereign bond issuance in London, 38 countries, own data, multiple sources

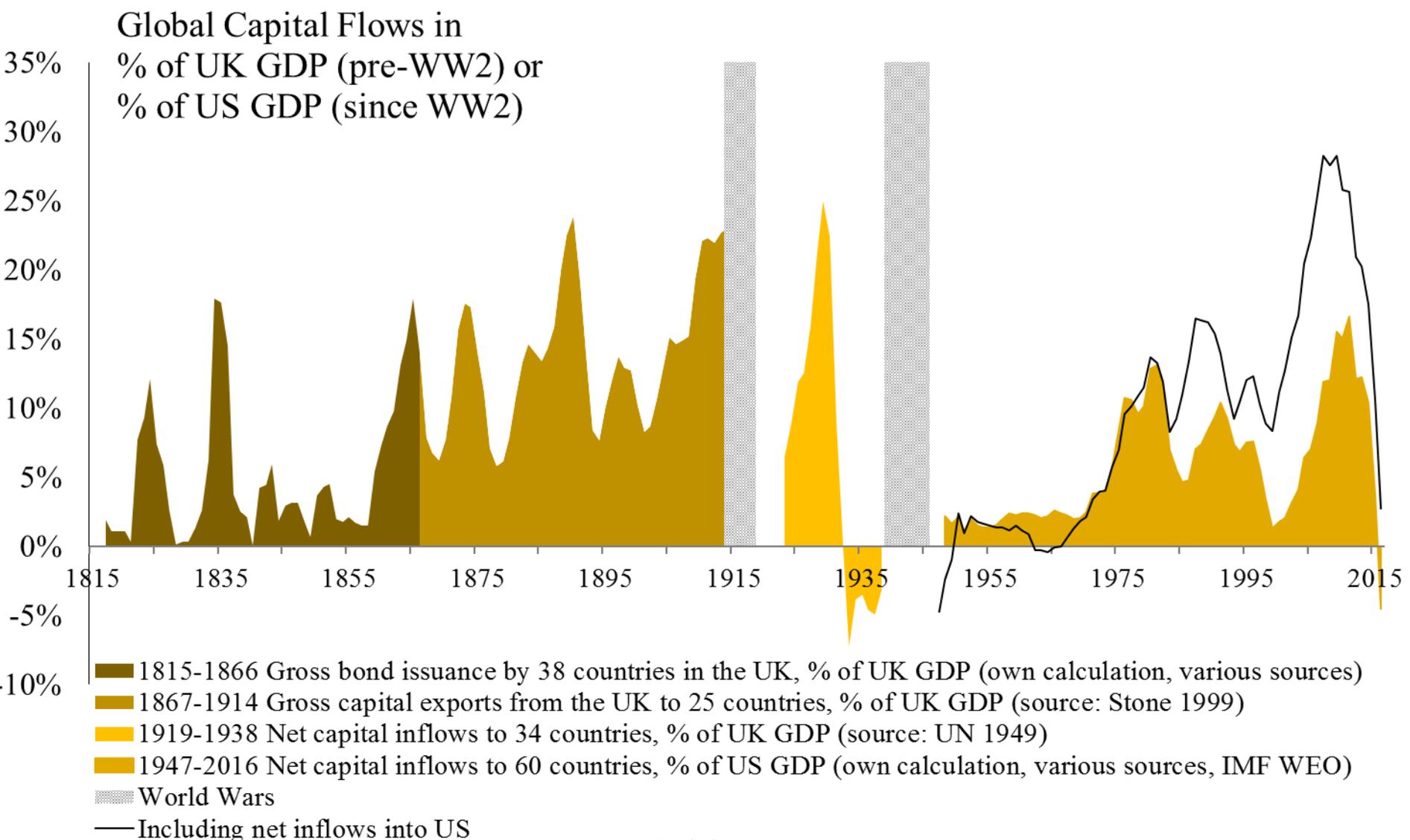
Other data and ongoing work

- Also constructed the capital account balance for the larger sample of 145 countries, 1980-2016
- Non-oil primary commodity prices, 1790-2016
- Nominal/real short-/long-term interest rates in financial centers
- Chronologies of regulation/debt management in fin. centers
- New and existing sovereign defaults
- Indices of capital mobility

In progress:

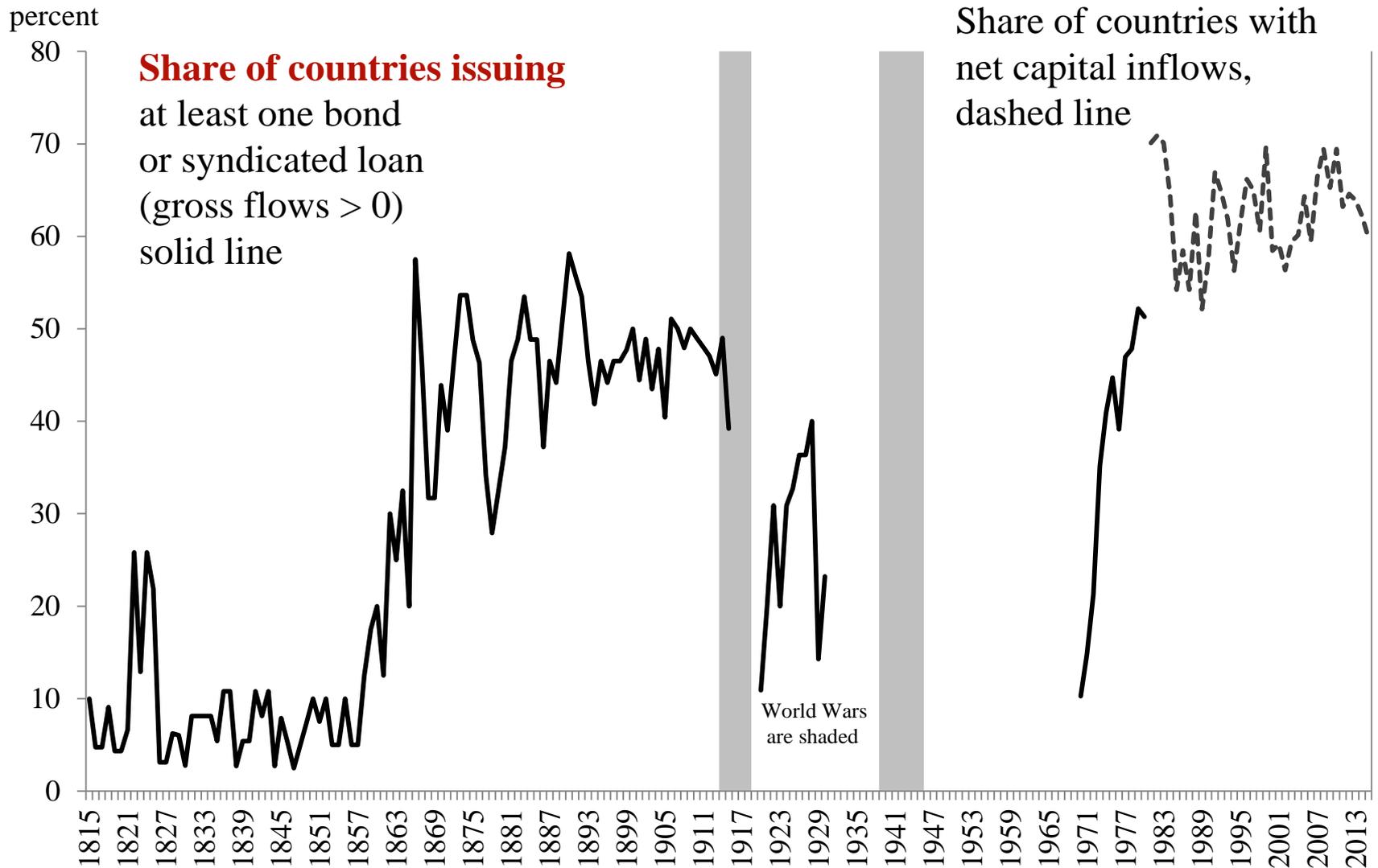
- Integrating gross flows (US, 1920-1930, bank loans 1970-1980, post-1990 data e.g. Forbes and Warnock)
- Financial conditions in “secondary” financial centers – expanding role of **China**

Capital flow cycles: Magnitudes of flows, 1815-2016



Capital flow cycles: Incidence of cross border flows

(How “global” is “global”? Capital mobility matters)



Co-movement of capital flows across countries

Factor Analysis and Principal Components, 1870-2016

| | <i>1870 - 1914</i> | | <i>1950 - 2016</i> | |
|--------------|--------------------|-------|--------------------|-------|
| | Percent Explained | Total | Percent Explained | Total |
| First Factor | 26% | 26% | 32% | 32% |
| Second | 24% | 50% | 18% | 51% |
| Third | 17% | 67% | 13% | 64% |

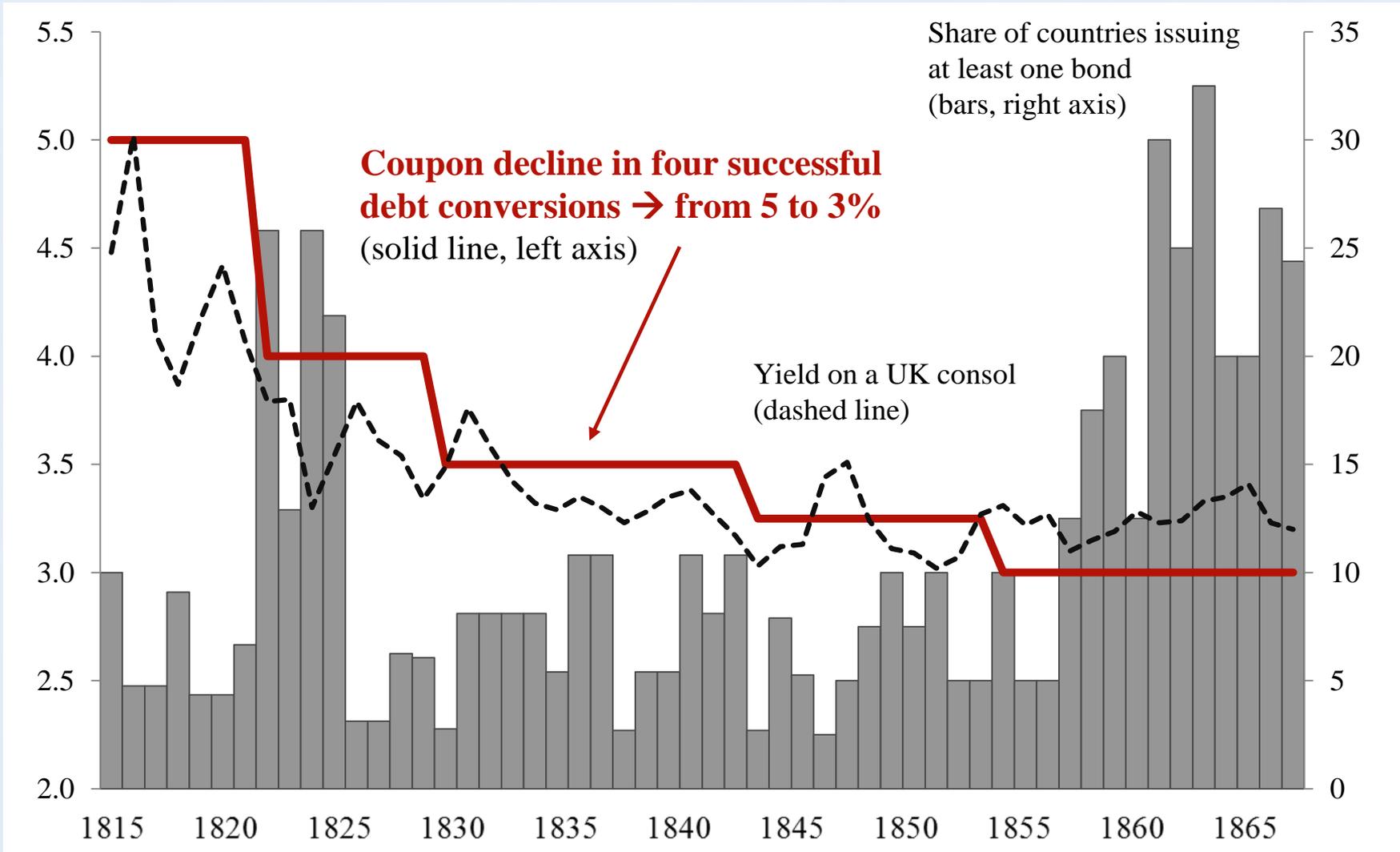
→ Not a WOW.... but two factors explain about ½ of the variation in “global” flows – now and then

The interaction of cycles in capital flows and...

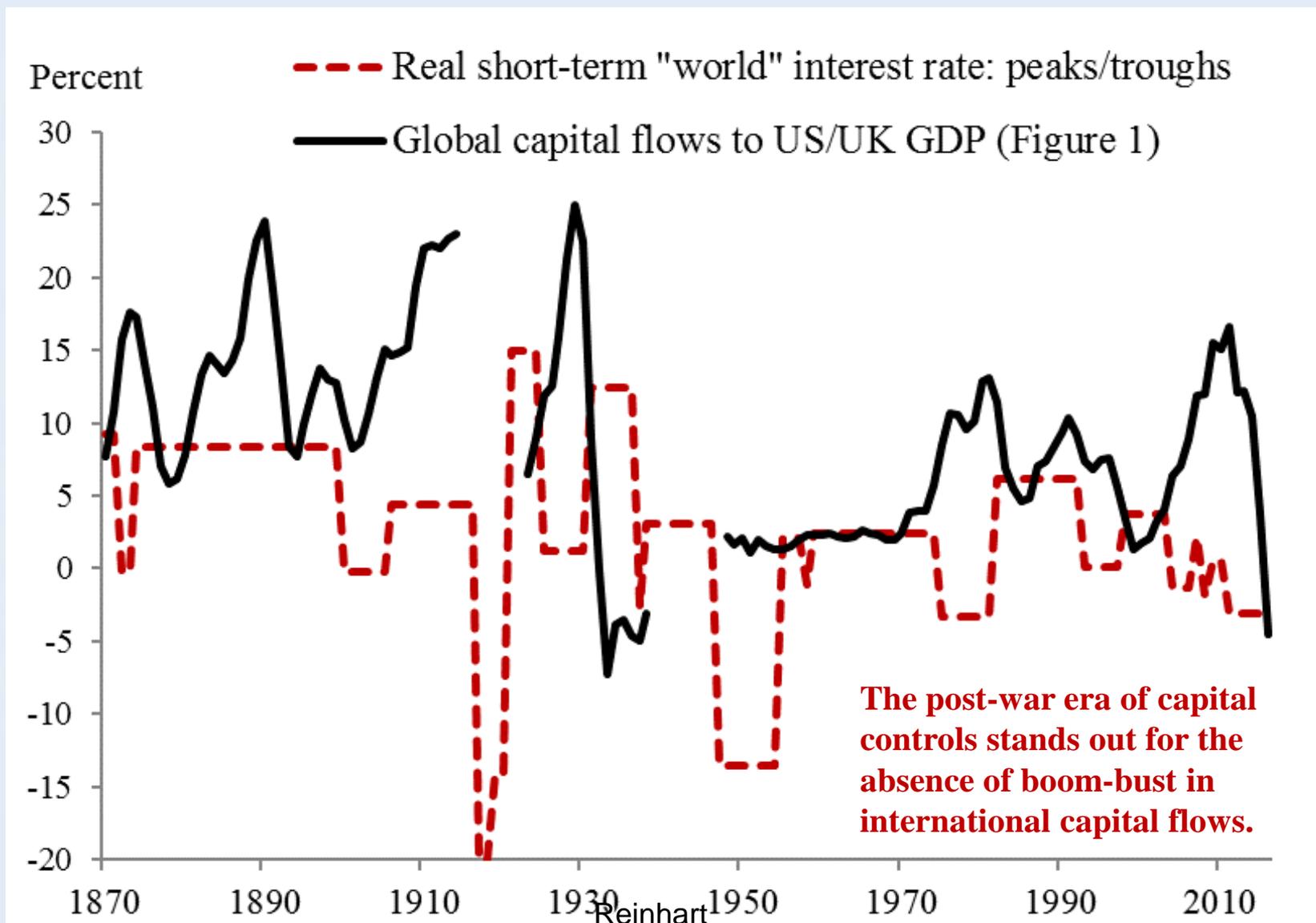
- 1) interest rates in financial center
and global financial conditions
- 2) commodity prices (non-oil)
- 3) sovereign default

Early 19th century: capital flows & long-term rates

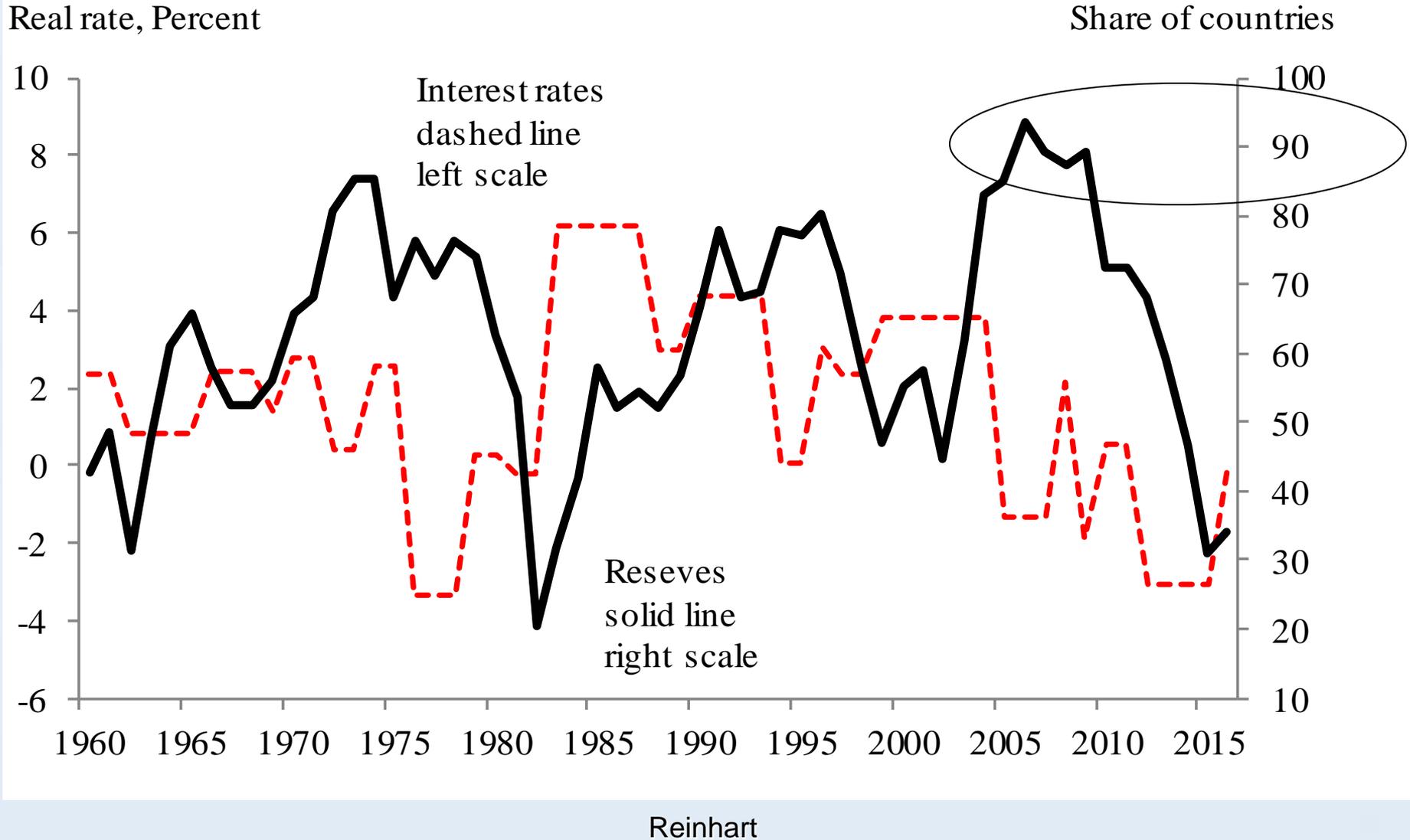
Debt management matters: Debt conversions in the UK helped foster the search for yield in the periphery



Interest rates and capital flows: 1870-present



Share of Developing or Emerging Market Countries with Reserve Accumulation Greater than 15% over 3 Years (47 countries), and Real US Federal Funds Rate: Peaks and Troughs, 1960-2016



“Global” interest rates and capital flows 1815-2016 – the role of capital mobility

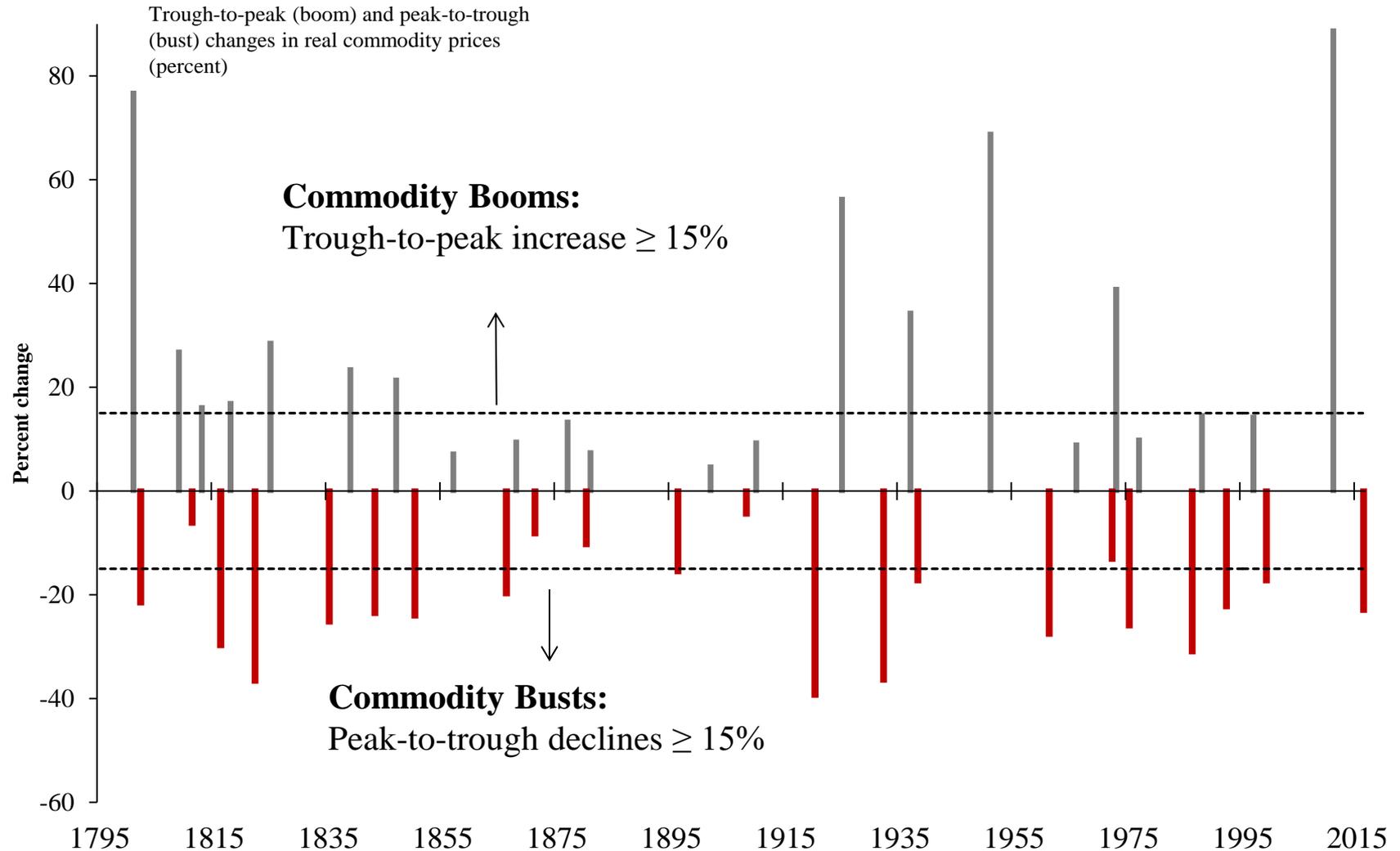
| Time Period Capital Mobility | 1815 - 1869 Low post-1820 defaults | 1870 - 1914 High Gold standard, financial global. | 1918 - 1975 Low Wars and capital controls | 1976 - 2016 High Rising to a new peak |
|--|---|--|--|--|
| <i>Real</i> interest rate in financial center | 0.216 (0.163) | -1.317** (0.494) | 0.582* (0.305) | -0.936*** (0.327) |
| Observations | 53 | 45 | 50 | 41 |
| R ² | 0.023 | 0.098 | 0.114 | 0.120 |

Notes: The dependent variable is the value of global capital flows as percent of GDP. The explanatory variable is the interest rate in the financial center (UK until 1918, US thereafter, see Data Appendix) Robust s.e. in parentheses. *, **, and ***, indicate significance at the 10%, 5% and 1% - level, respectively.

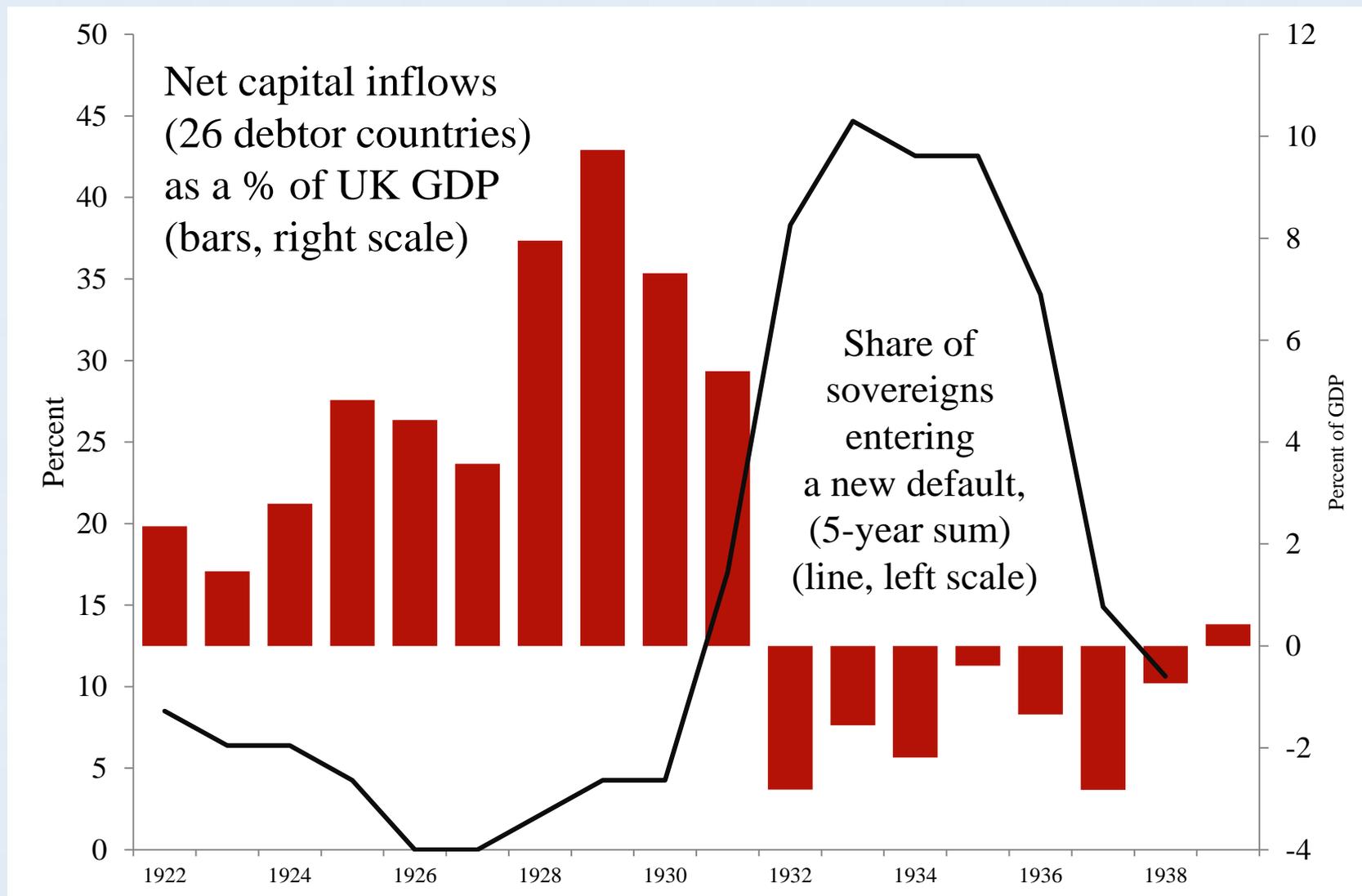
The relationship between capital flows and sovereign default goes in both directions. Furthermore, defaults can dampen the role of international interest rates

Commodity cycles: 1790-2016

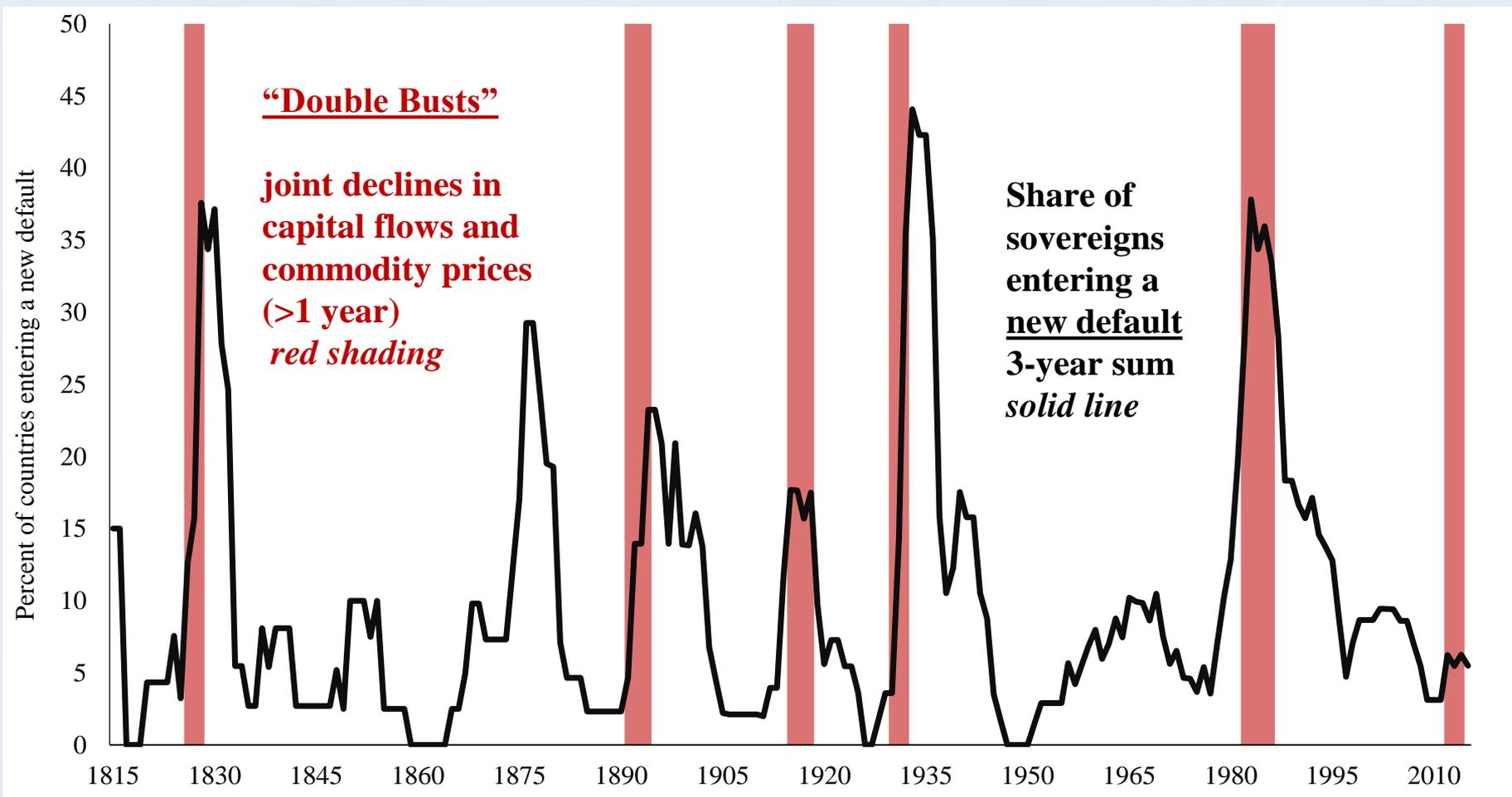
(real, non-oil prices)



Example: Interwar – Capital Flows & Defaults



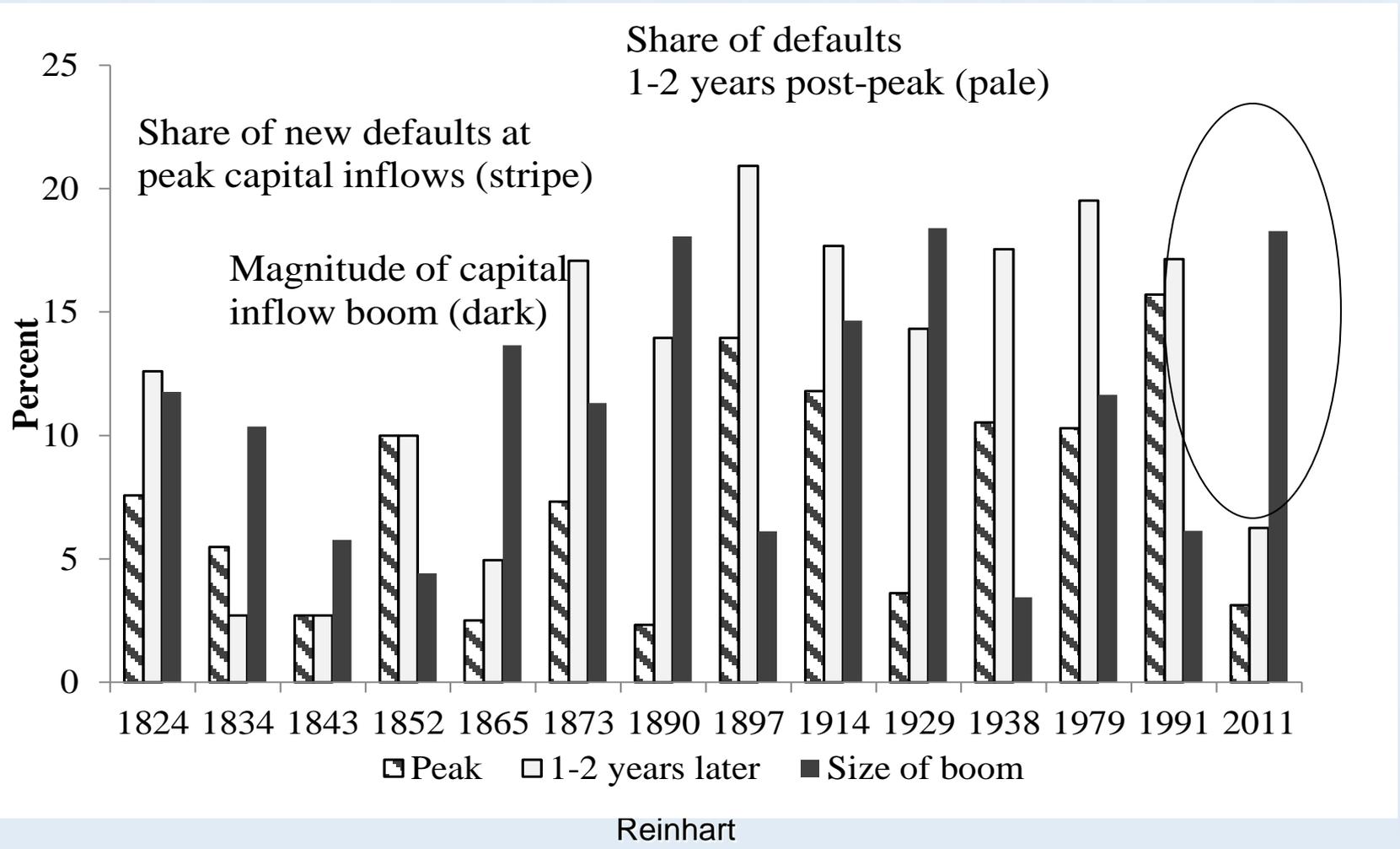
Dangerous liasons: commodity and capital flow “double busts” and sovereign defaults



The current cycle in historical perspective

Share of New Defaults before and after capital flow surges, 1815-2016

Despite the magnitude of the recent boom and reversal, the increase in defaults is modest.



Double and Triple Busts and the “missing” defaults since 2011

| Double bust episodes | Capital flow Bust | Commodity Bust | Interest Rate Spike (real)? | Share of Countries in Default (in peak year) |
|----------------------|-------------------|----------------|-----------------------------|--|
| 1824 - 1828 | yes | yes | yes | 43.75 |
| 1890 - 1894 | yes | yes | <i>no</i> | 18.60 |
| 1914 - 1918 | yes | yes | yes | 17.65 |
| 1929 - 1933 | yes | yes | yes | 46.43 |
| 1981 - 1986 | yes | yes | yes | 42.74 |
| 1991 - 1999 | yes | yes | yes | 46.34 |
| 2011 - 2016 | yes | yes | <i>no</i> | 13.82 |

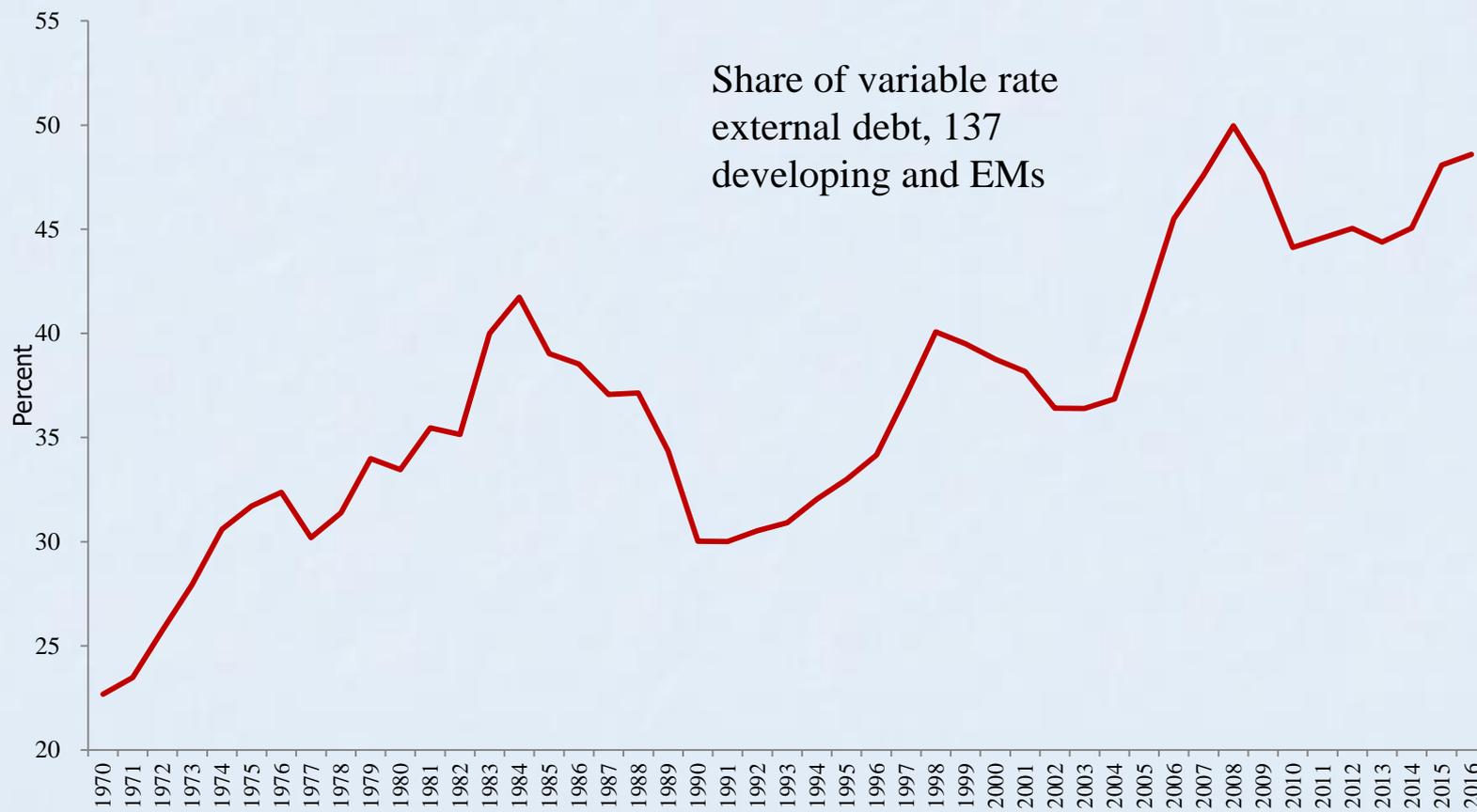
About 15-20 new defaults “missing” since 2011 (in hist. comparison)

- Lower rates (post inflation stabilization in US)?
- Better macroeconomic management? Mismeasurement?
- China’s emergence as a push factor (both real and in finance)?

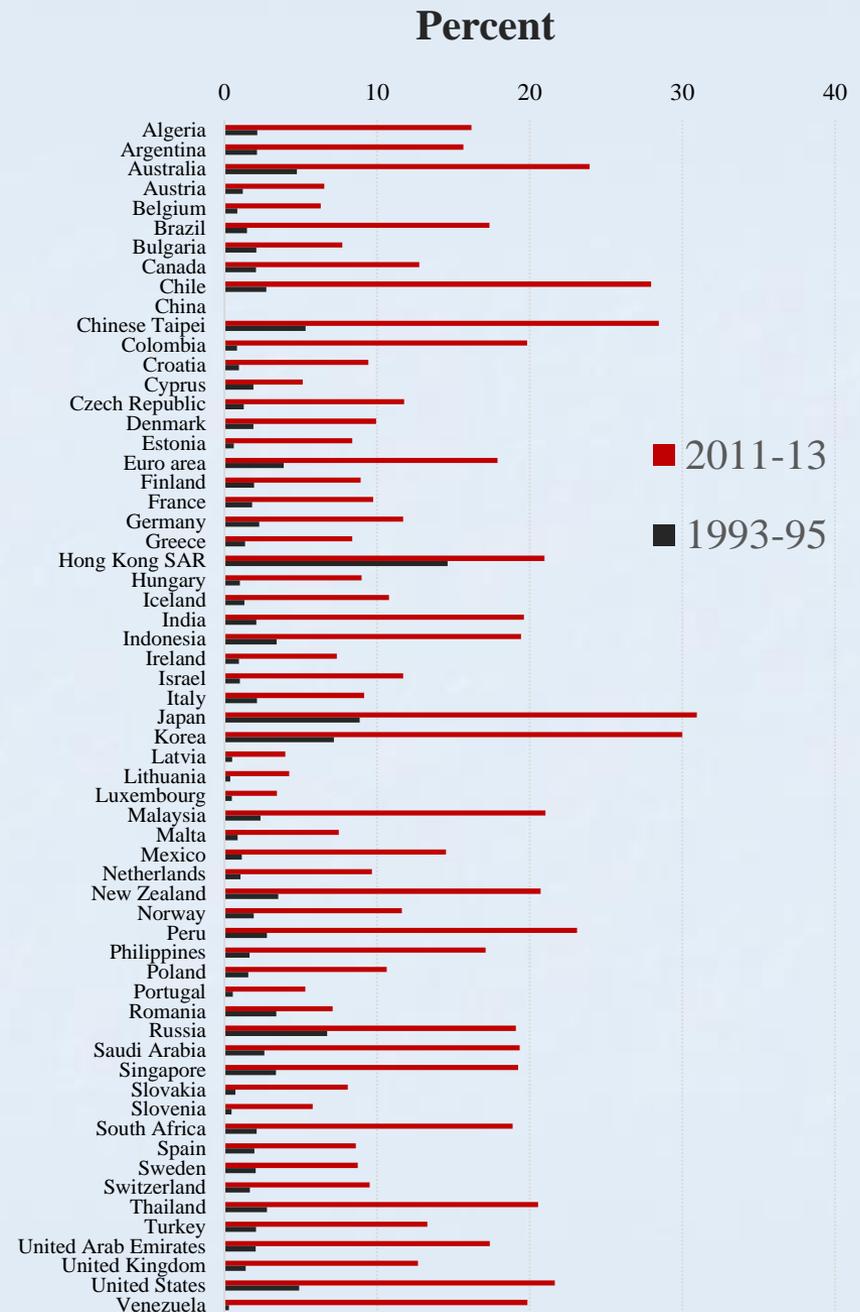
Some (not necessarily) mutually exclusive hypotheses for the missing defaults

- Better macroeconomic management, including macroprudential and more hedging. Frankel and Vegh (2013), McGettigan et al. (2015) on fiscal and monetary policy. Ostry, Ghosh and Qureshi (2012 and 2016) and Cerutti, Claessens and Laeven (2016) on macroprudential and Donders et al (2017) on private commodity hedging, among others.
- Better luck, external factors have remained more favorable than in past cycles
 - low interest rates in US and other advanced economies
 - high growth in China (the newest push factor)?
- Mismeasured (under-reported) defaults (Reinhart and Trebesch, 2016, arrears on official creditors. Arrears on Chinese lending to low income commodity producers?

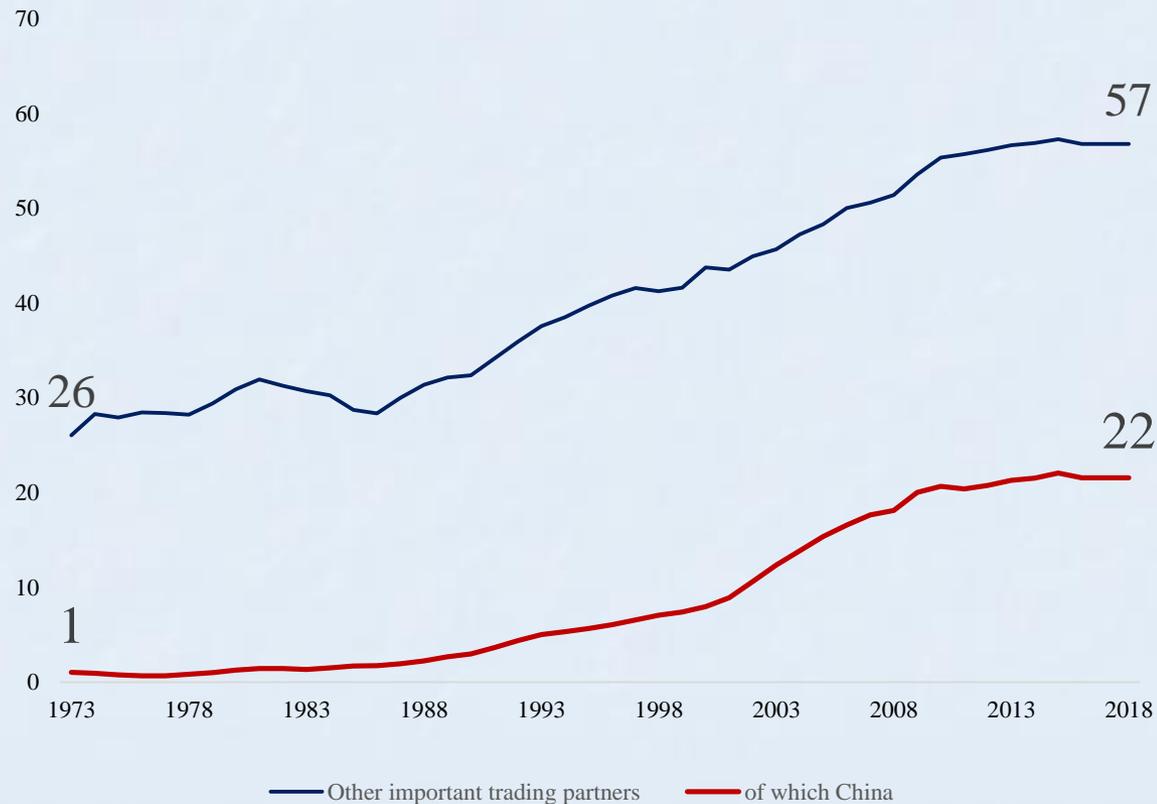
Vulnerability to Changes in International Interest Rates, 1970-2016



China's inroads in world trade are widely recognized and cuts across advanced and emerging economies and nearly all regions. Shares of China in BIS broad effective exchange rate indexes based on bilateral trade shares.

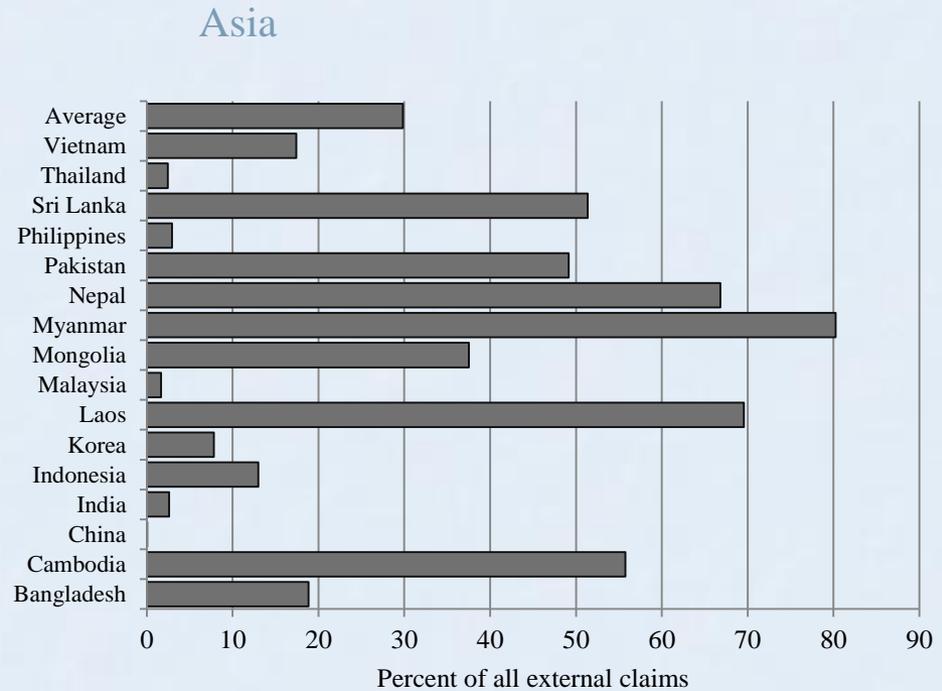
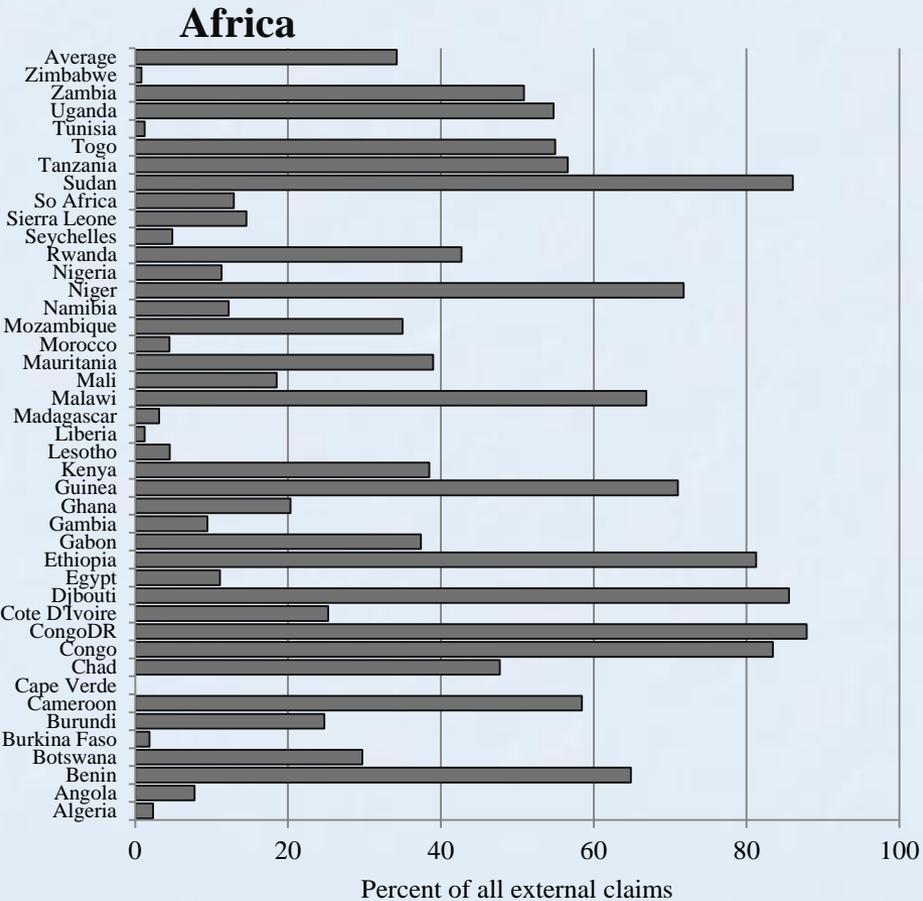


Shares in the FRB broad exchange rate index for the US based on bilateral trade shares, percent



Trade inroads have their counterpart in China's International Lending—especially low income countries:

Estimated Share of Total Cross-Border Claims as of 2016:Q1



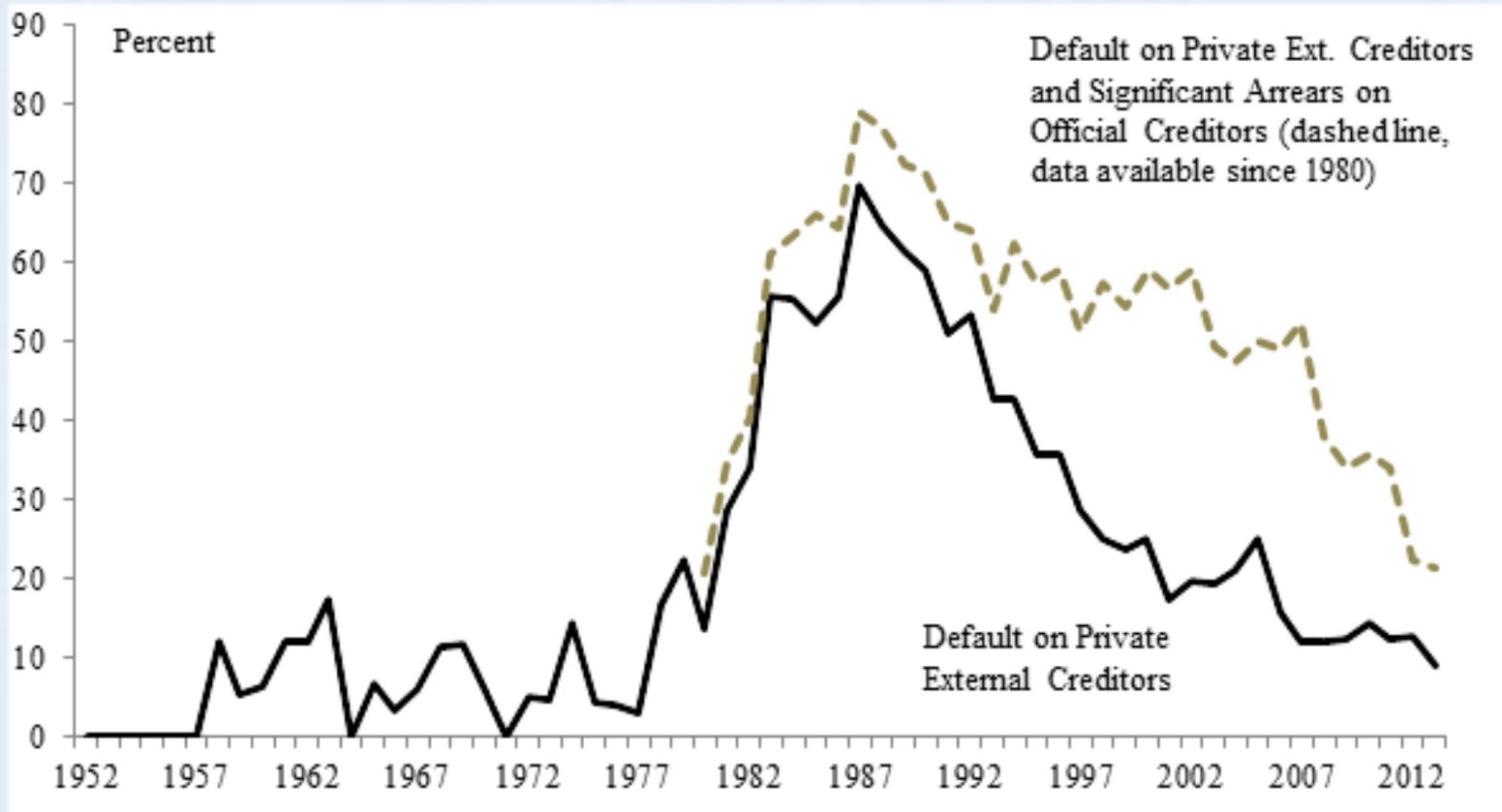
Are some of these official Chinese loans in arrears?

Currency Composition of Public and Publicly Guaranteed Debt: All Other Currencies: Renminbi's Growing Share?



The Incidence of Default With and Without Official Creditors: 1952-2016

Defaults and arrears to non-China official creditors are much higher than commonly reported—but still no recent upturn



There is evidence to suggest that the macroeconomic management of capital inflow surges has been improving in emerging markets as a whole.

Yet, one has to recall that prior to the Global Financial Crisis of 2007-2009, a widely accepted view was that the advanced economies had tamed the business cycle. This was the short-lived era of the so-called “Great Moderation.”

Perhaps, the change is structural but a cautious interpretation the *missing defaults* is that the protracted nature of the downturn in international conditions has yet to take its cumulative toll or lingering weaknesses will only become evidence once the major central banks move further along in renormalizing the stances of their policies.