4. Money Markets and Interest Rate Determination

4.1 Money supply

- Definition, role and growth rate
- Nominal vs real MS

4.2 Money demand

- Definition and demand factors
- Nominal vs real MD

4.3 Interest rate determination

- Money market eqlbm
- Changes in eqlbm

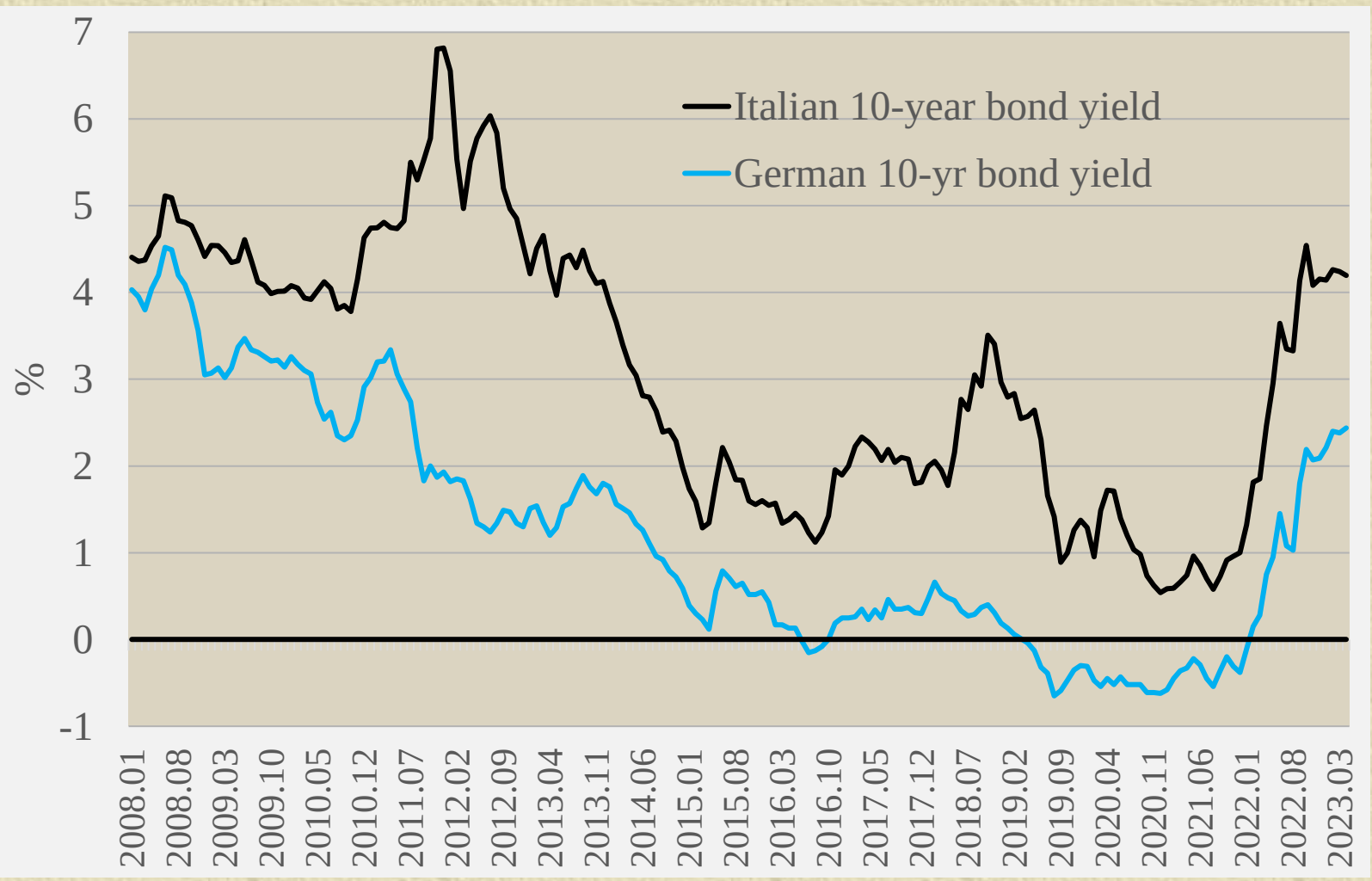
5. Interest and E Rates, and K-Markets and Flows

5.1 Investor behavior and interest rates

- Investor behavior
- Relation of interest and exchange rates (i, E)
  - Interest rates, asset returns and LOOP for assets
  - i-rate parity: $[i_H] = [i_F]^e + ([E_{lc/fc}]^e - [E_{lc/fc}]/ [E_{lc/fc}])$
  - Interpretation and conditions
  - Example of covered interest arbitrage

Interest and E Rates and K-Markets and Flows

- Example of €-bond spreads – risk premiums

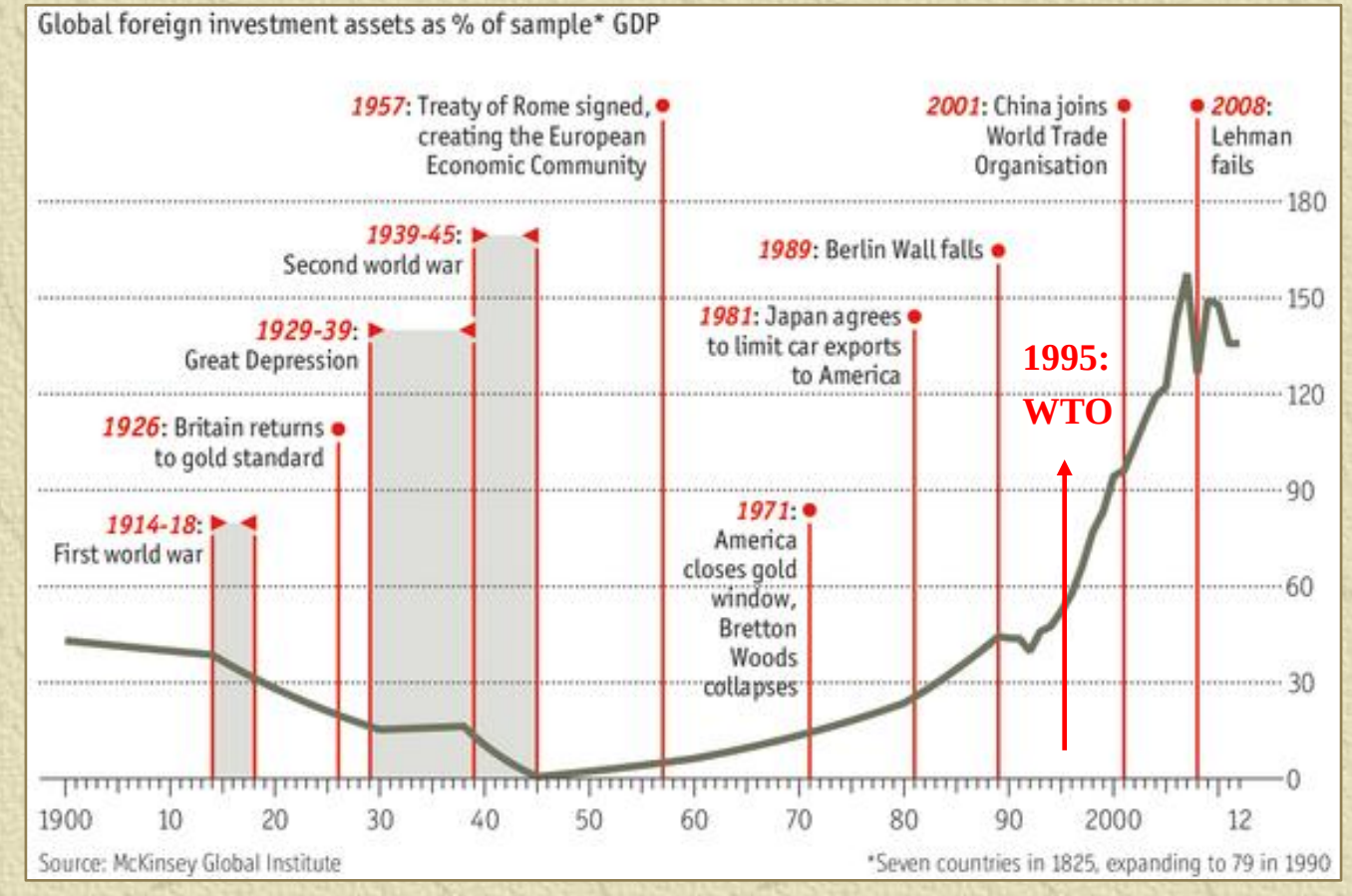


World Government Bonds, www.worldgovernmentbonds.com, accessed Apr 2023

Interest and E Rates and K-Markets and Flows

5.2 International K mkts

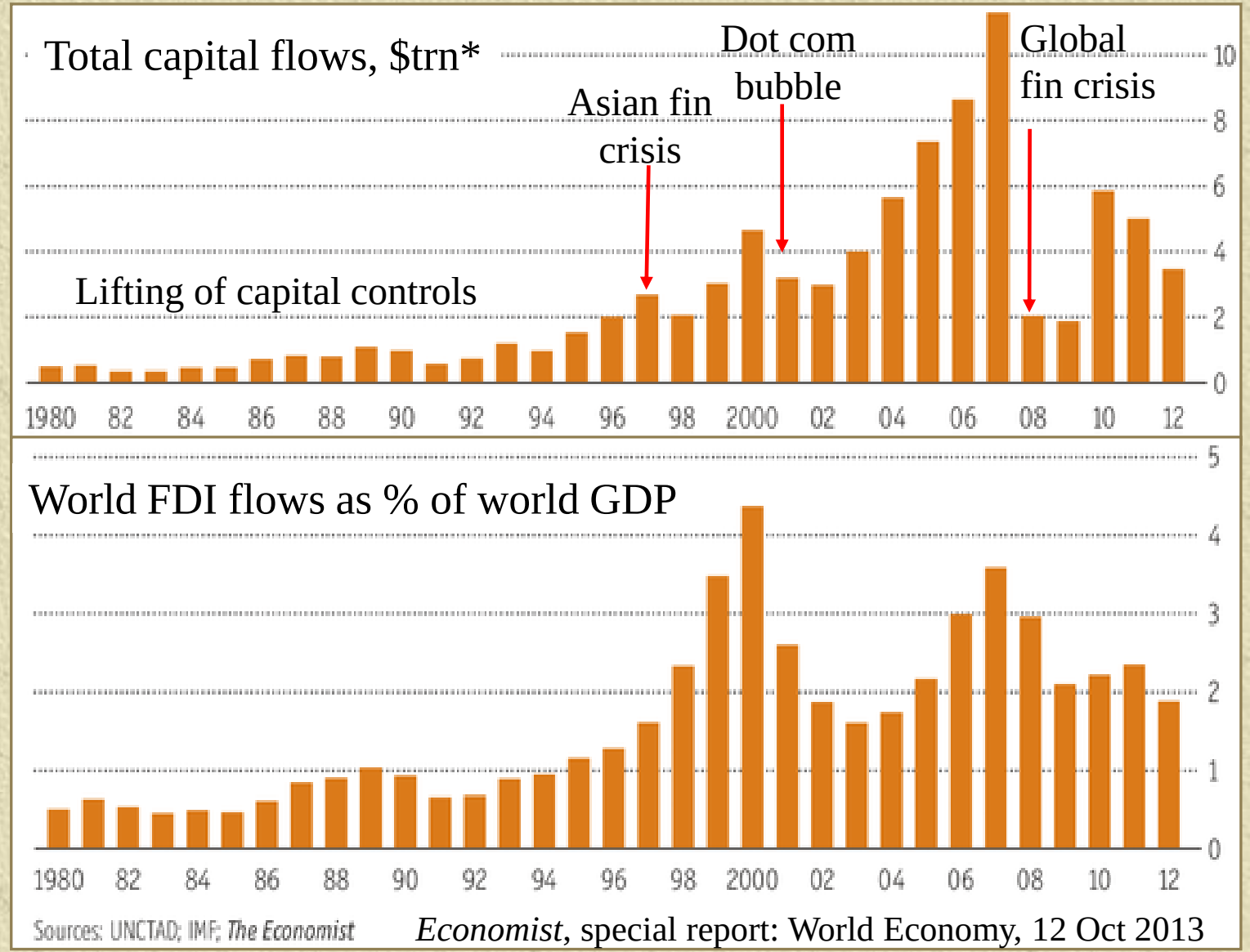
- Background: exchange regimes and regulations
- Trends: historical overview of cross-border K-flows



Economist, "Railroads and hegemons", 12 Oct 2013, p. 5

Interest and E Rates and K-Markets and Flows

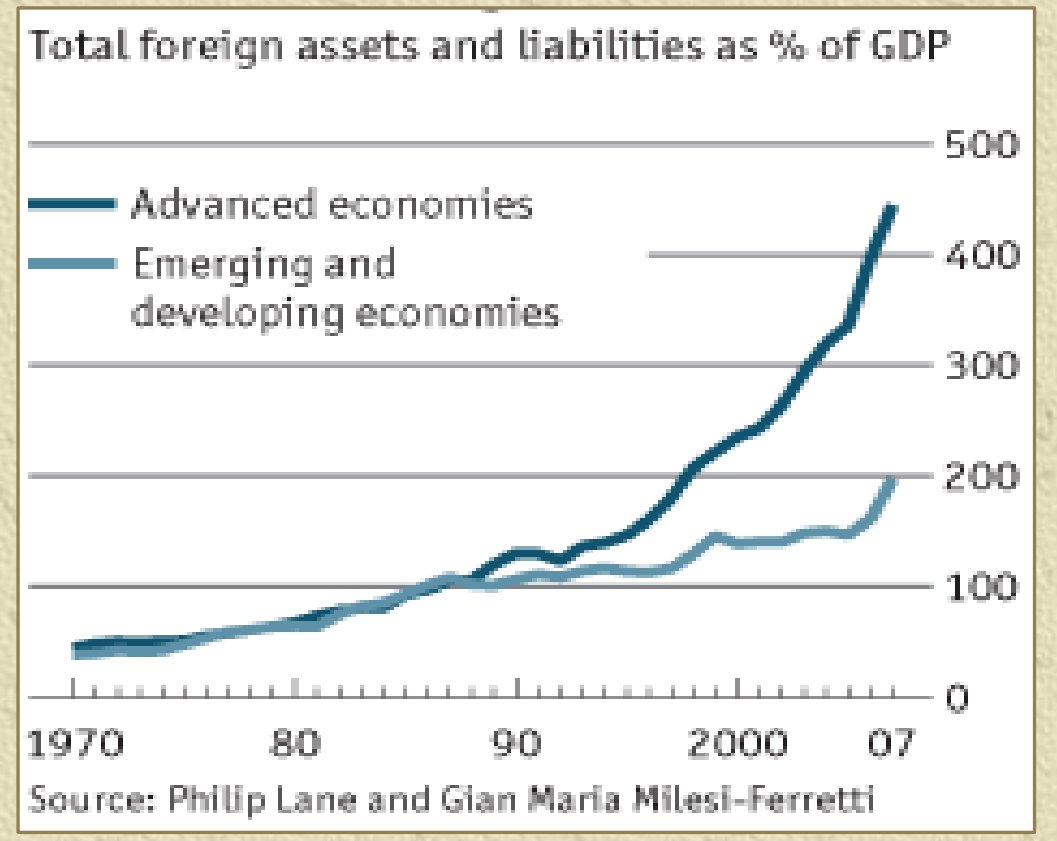
- Evolution of capital flows since 1980s



Economist, special report: World Economy, 12 Oct 2013

Interest and E Rates and K-Markets and Flows

- Measures of international K mobility
  - Late 1980s: $190bn daily currency trades, NY, London, Tokyo
  - 1995: $1.2 trn exchanged daily, 2.5 times world GDP
  - 2007: $5 trn exchanged daily, 11 times world GDP
  - 2013: $5 trn exchanged daily against $50bn TIG+S a day



Economist, "Taming the beast", Special report on the world economy, 9 Oct 2008, p. 3-7.

Interest and E Rates and K-Markets and Flows

- Post-crisis K-flows, by region

Interest and E Rates and K-Markets and Flows

- Post-crisis flows to emerging markets, by K type

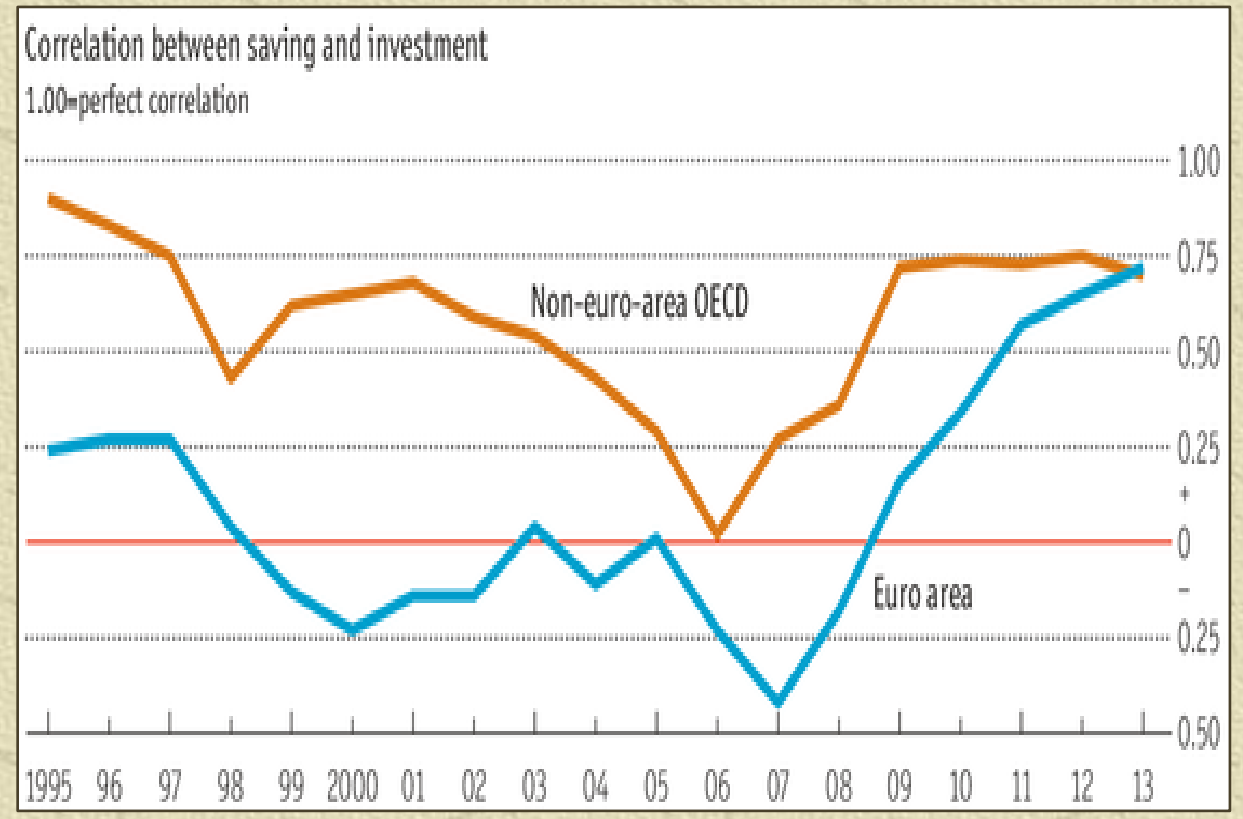
Interest and E Rates and K-Markets and Flows

- Theory: are international capital markets good/bad?

- Does int'al K-market exist/work in practice?
  - 1. BOT-K-mkt relation
    - Saving, I relationship
    - Net K-flow-BOT position
  - 2. K-flows: mobility, direction, correlation with GDP growth
  - 3. Covered interest arbitrage
  - 4. Real i-rate differentials
  - 5. Nominal i-rate differentials
  - 6. Occurrence of bubbles and financial crises

Interest and E Rates and K-Markets and Flows

Indicator 1	Theory	Practice
National saving-investment relationship	In a world of perfectly mobile K, there should be no relationship between domestic savings and I.	1980s: savings finance $I_{Domestic}$ 1990s-2007: ↓ s,I correlation 2007: GFC brings reversal



Feldstein and Horioka, 1980

- Correlation did ↓ over time, esp. in Europe, but returned with the financial crisis
- Less likely German saver would finance Spanish loan after 2007
- Low intra-eurozone K-flow despite low savings

Economist, "Financial fragmentation: Too much of a good thing", 12 Oct 2013, p. 6-8.

Interest and E Rates and K-Markets and Flows

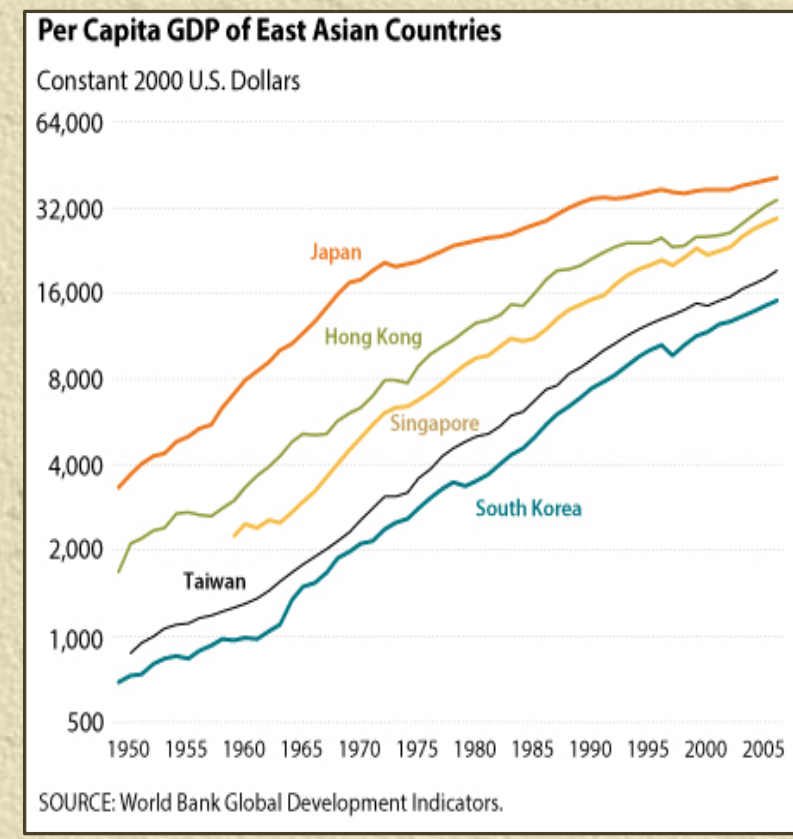
Indicator 2	Theory	Practice
Capital flows * Degree of mobility * Direction of flows * Correlation with %ΔGDP	In a world of perfectly mobile K, capital flows from where it is abundant to where it is scarce and where returns are highest (poor countries). Convergence in returns, factor prices, output and income.	Since 2000, China and Asia, more generally, lent to the US at very low interest rates, while sacrificing consumption at home. K-mobility does not imply convergence.

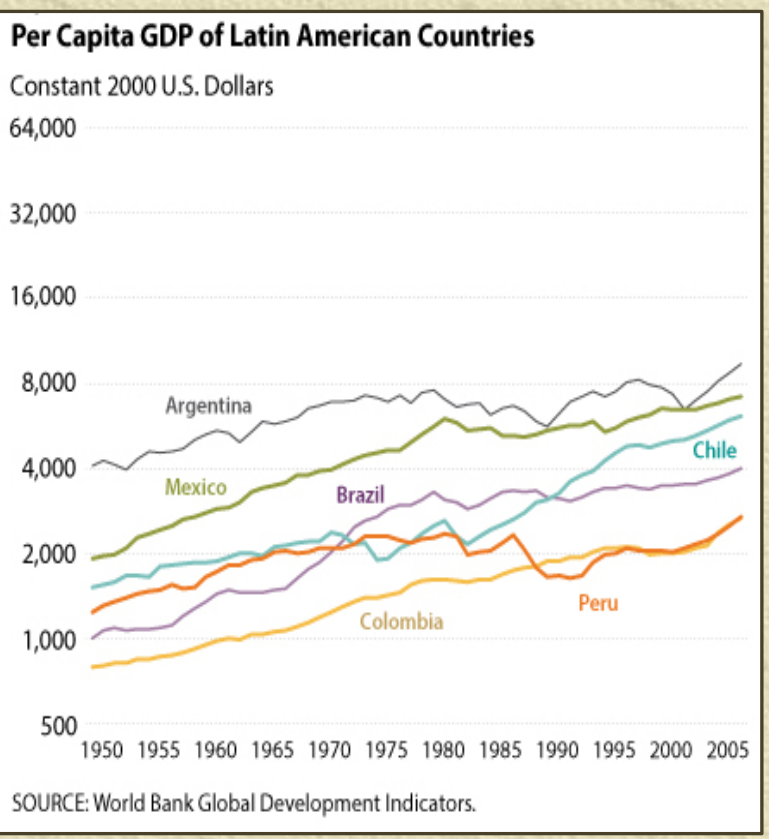
- Lucas paradox of K flows, direction and magnitude (Lucas 1990)
  - Direction of flows
    - FDI flows from developed to developing economies
    - Financial K does not behave as per theory
  - Magnitude of flows
    - K-flows do not always flow to where growth is higher
    - Asset-liability not correlated with GDP growth

IMF, "The Paradox of capital", Finance and Development, Mar 2007 (44:1).

Interest and E Rates and K-Markets and Flows

- Little K-inflow into E Asia between 1950-80 despite fast GDP growth and high K prodvty
- Considerable K flowed into Latin America despite its slower growth and low K prodvty





Federal Reserve Bank of St. Louis, "The direction of capital flows", Economic Synopses, no. 22, Oct 2016.

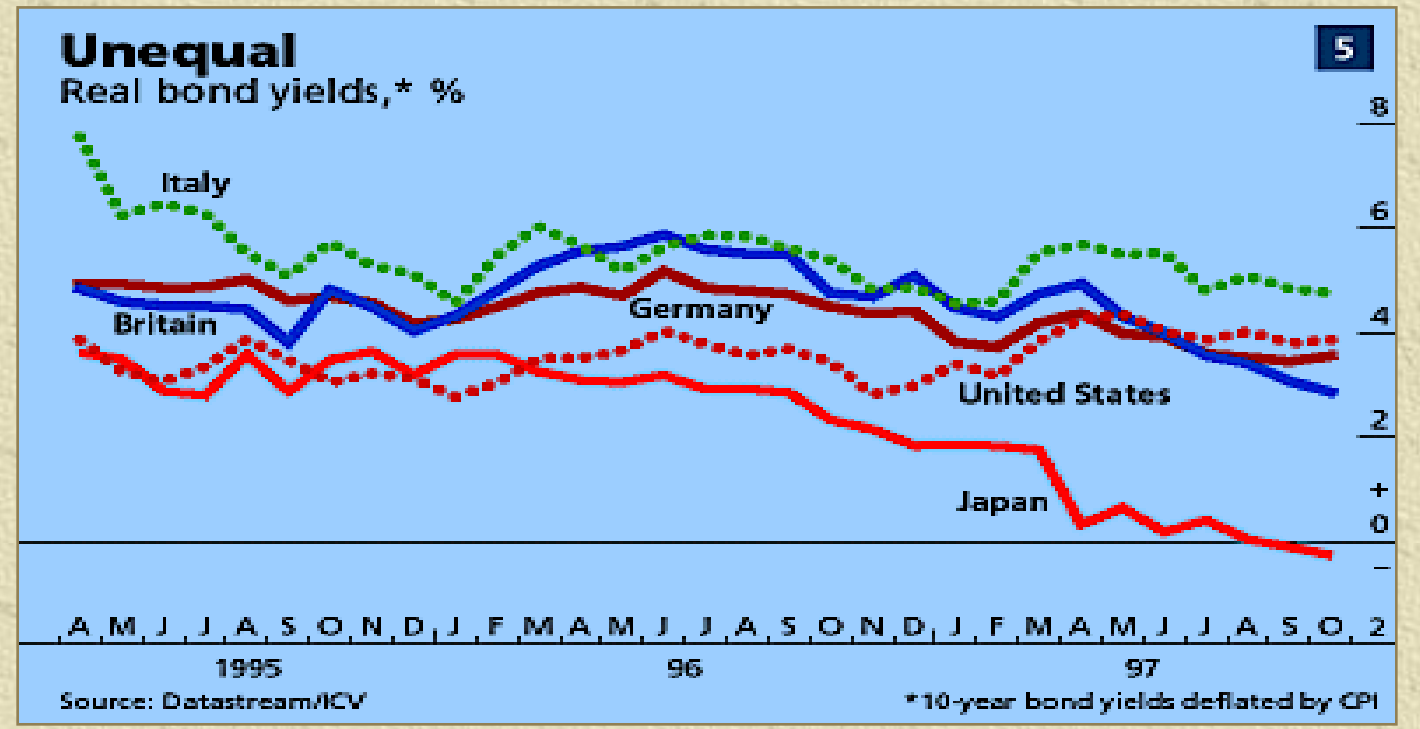
Interest and E Rates and K-Markets and Flows

Indicator 3	Theory	Practice
Covered interest rate arbitrage	Capital markets are integrated such that riskless arbitrage opportunities do not exist.	There are a lack of arbitrage opportunities, but that does not imply that a global capital market exists.

- Covered interest arbitrage holds for bond, not all assets
  - Assets not perfect substitutes
  - Risk differ and expectations matter
  - Tax rates differ; K controls

Interest and E Rates and K-Markets and Flows

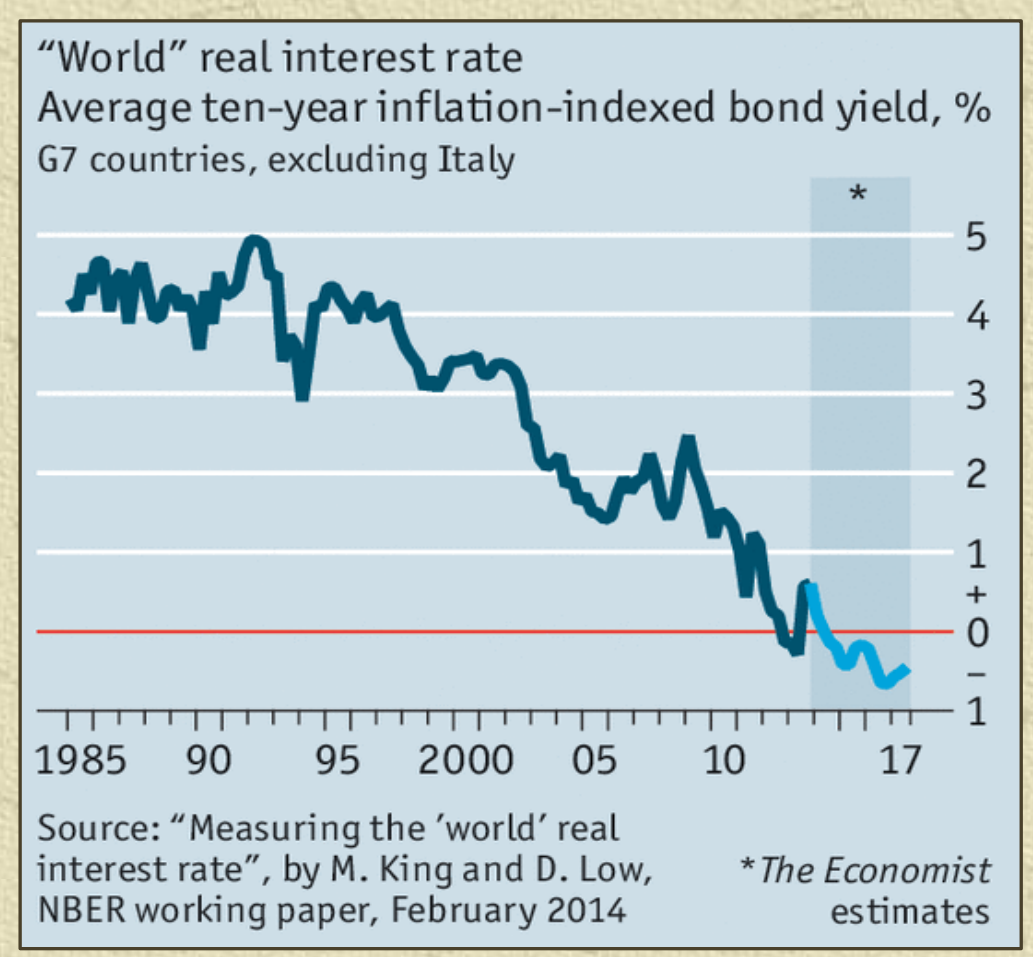
Indicator 4	Theory	Practice
Real interest rate differentials	If assets are perfect substitutes, then expected movements in currencies should equalize the differential in interest rates.	The condition does not always hold even among advanced economies because investors worry about risk of unforeseen exchange rate depreciation (ΔE^e); the rates do tend to move together



Economist, "School's brief: Capital goes global", 23 Oct 1997, p. 99-100.

Interest rates, E, K-flows and Capital Markets

- Trends in interest rates



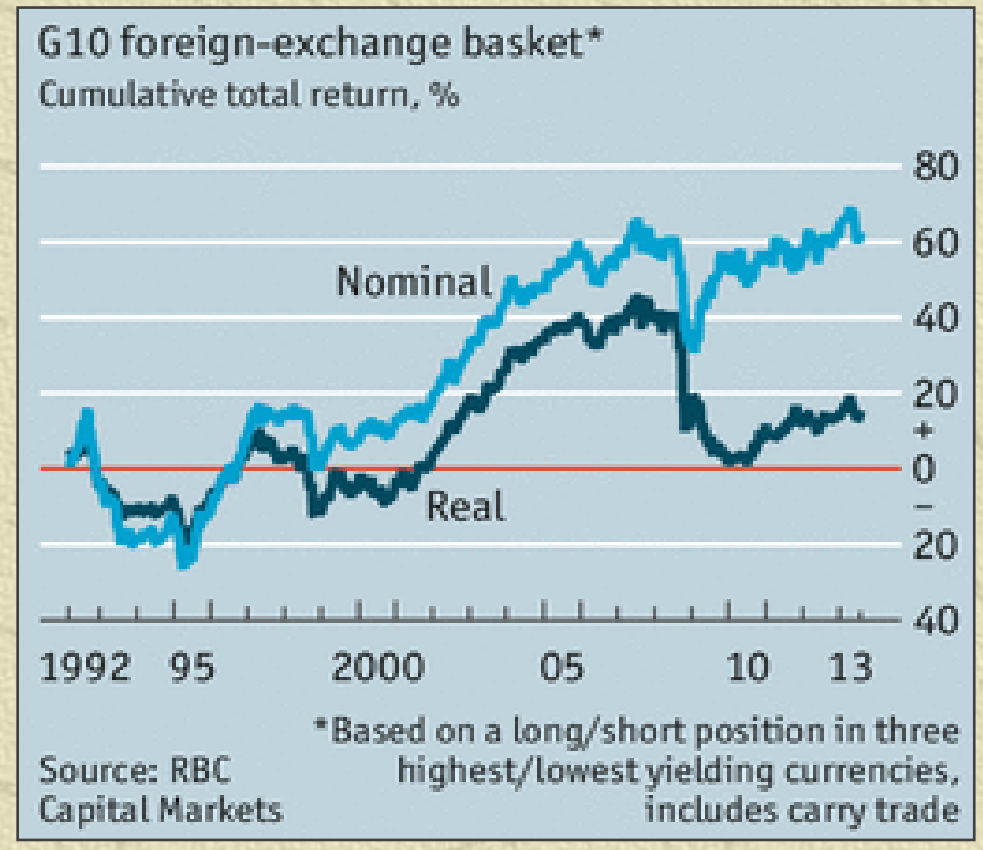
Steadily falling real i-rates esp. in 1990s and at historic lows in 2017.

Reasons are not understood nor agreed upon. 3 potential reasons:

- Increased willingness to save (more supply of saving and lower investment)
- Structural change in economy (Asia's saving behavior and the savings glut)
- Actions of central bank lowered real i-rate (and low inflation even as economies began to grow)

Interest and E Rates and K-Markets and Flows

Indicator 5	Theory	Practice
Nominal interest rate differentials	Carry trade should not earn profits in a well-functioning international capital market.	The carry trade exploits nominal interest-rate differentials and works, yielding positive profits.



Carry trade: borrowing in low-i mkt to invest in high-i mkt to profit (with risk)

* High i_{Nom} should reflect higher P; lc value must ↓ for parity – strictly holds

* Most profitable strategy since mid-1990s was carry trade. Study of returns with perfect foresight showed that info on nominal rate is more important than real i

* Nominal i-rate easier to target; currency traders are more concerned about the next few weeks than about L-T ΔE.

* E^F is naïve "forecast" of ΔE and a bet on currency with high i is better than E^F

Economist, "Buttonwood: Carry on trading", 10 Aug 2013

Interest rates, E, K-flows and Capital Markets

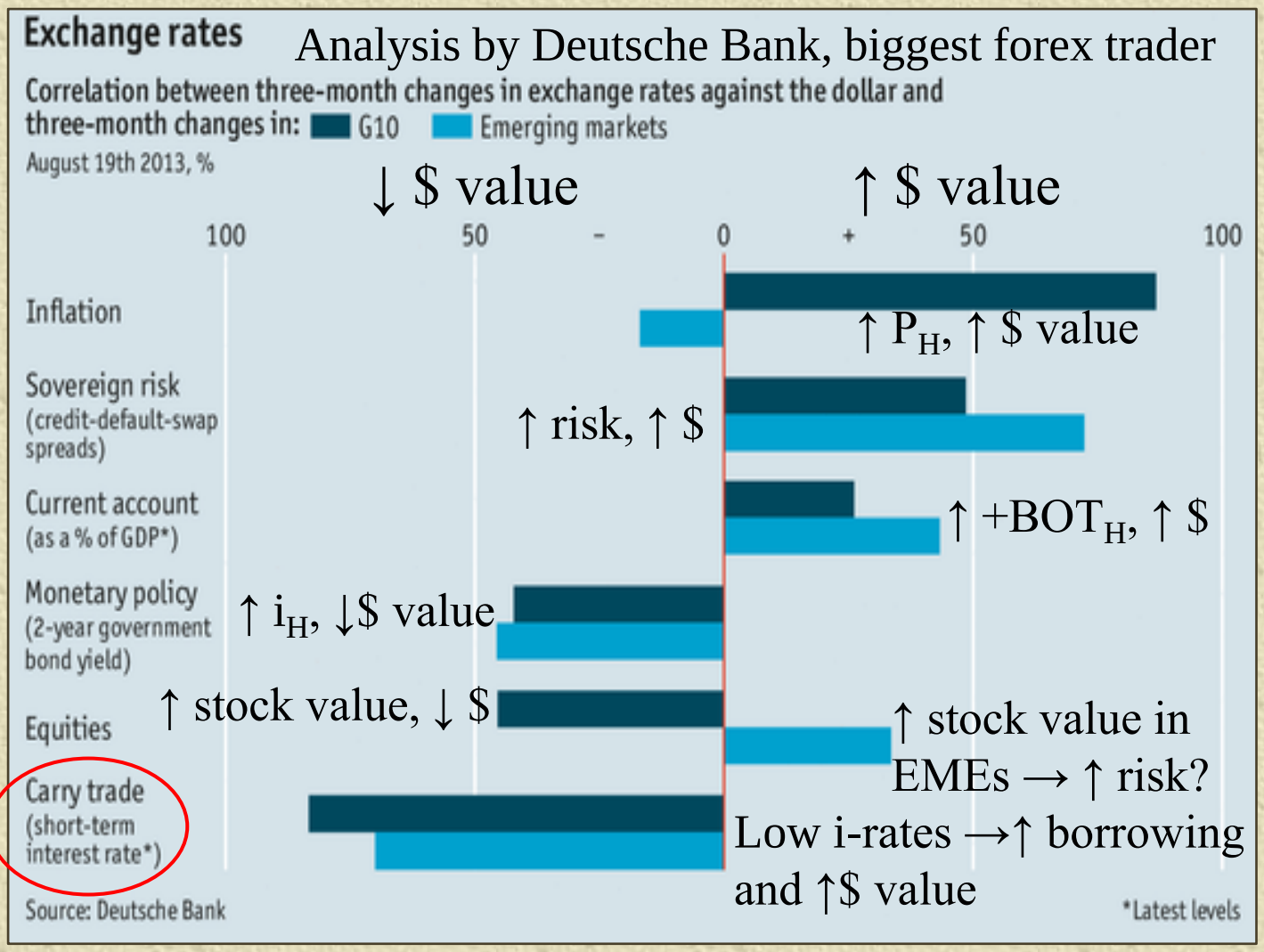
- Correlation of currency movements (against the $)

Strongest + correlation:

* In G10 economies, $\uparrow P_H$ moves with ↑$
* In all mkts, sovereign risk (credit-default-swap spread) moves with ↑$: implies widening CDS spread (↑ risk) and ↑ $ value

Strongest - correlation:

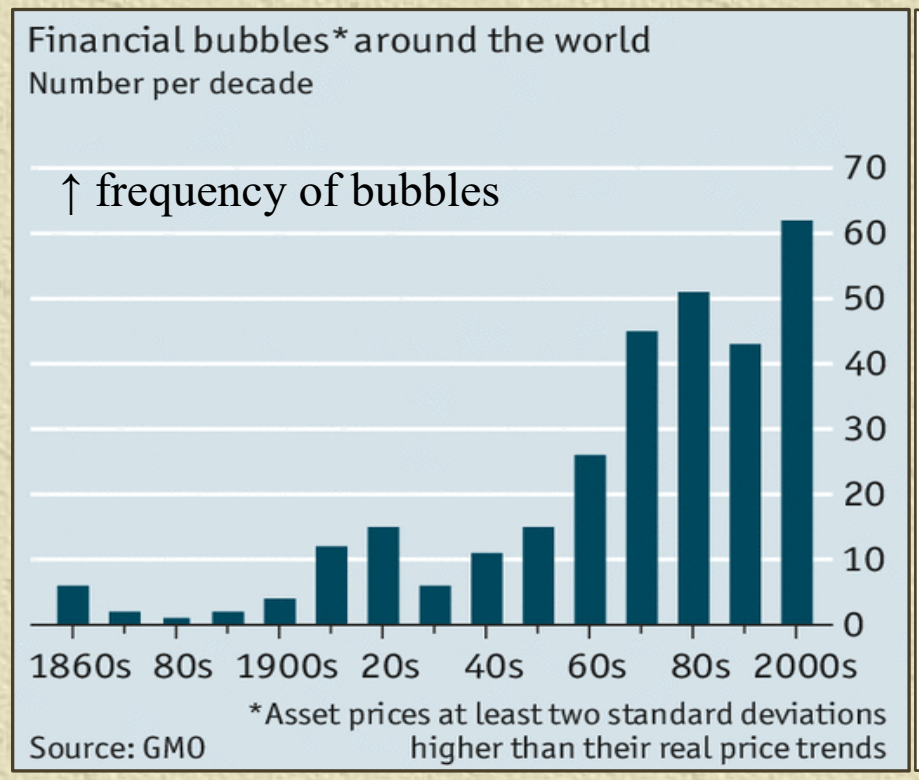
* High i_H, low $ value
* Currencies negatively correlated with short-term i-rates (proxy for the carry trade): low i_H, higher $ value

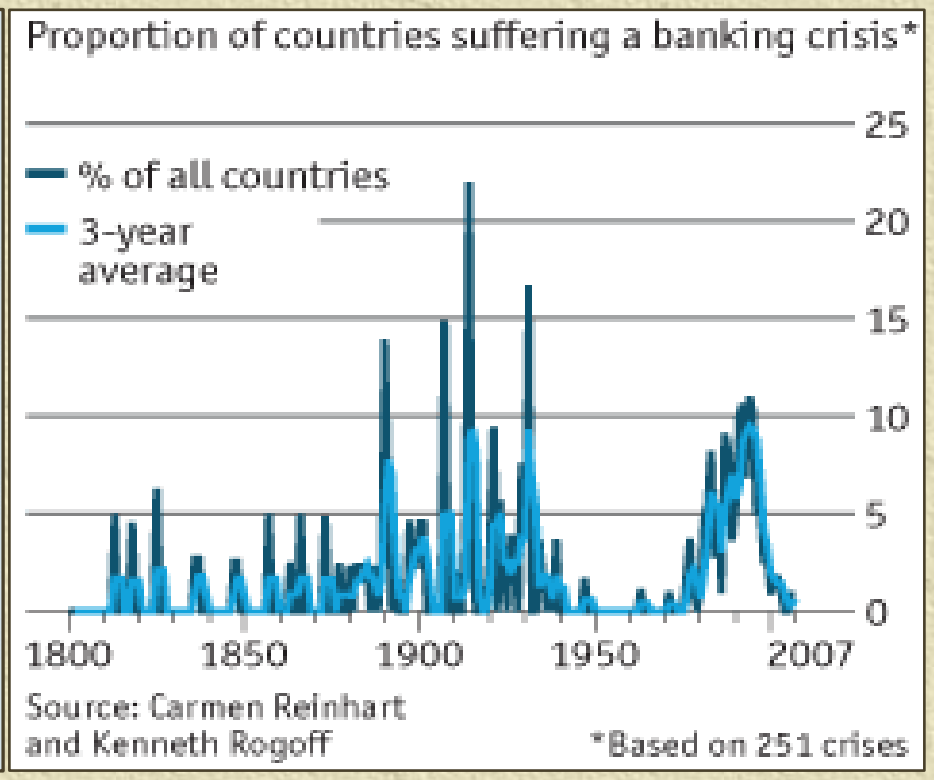


Economist, "Exchange rates", 24 Aug 2013, p. 73

Interest and E Rates and K-Markets and Flows

Indicator 6	Theory	Practice
Occurrence of bubbles and financial crisis	If markets are efficient and well-functioning (and regulated), then the occurrence of bubbles and financial crisis should lessen.	Bubbles contradict efficient mkts





Economist, "Asset prices: Not fully inflated", 7 Dec 2013, p. 68-9.