

Global Imbalances and Low Interest Rates: An Equilibrium Model vs. a Disequilibrium Reality

Comments in response to the paper by Ricardo **Caballero**,

Emmanuel **Farhis** & Pierre-Olivier **Gourinchas**

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BIS Annual Research Conference

Brunnen, Switzerland, June 19-20, 2006

Caballero, Farhis & Gourinchas are motivated by three current properties of the world financial system

- Fact 1: Large and rising US current Account deficits
- Fact 2: Long-term interest rates have been low since 2002.
- Fact 3: Rising share of US assets in world portfolio

Fact 3 follows naturally from fact 1; Fact 2 is the real anomaly.

C, F & G model is a tour-de-force

- Shows how all three properties could be the outcome of an equilibrium situation.
- The model features 3 regions
 - high-growth high-finance U (US, UK, Austra.)
 - low-growth high-finance E (€-zone + Japan) &
 - high-growth low-finance R (rest of world).
- Basic idea: “fast growth in R coupled with their inability to generate local store of value instruments increases their demand for saving instruments from U and E . More growth potential in U than in E means that a larger share of global saving flows to U .” (p. 4)

The model would indeed account for the 3 facts, if true.

- Driven by:
 - Collapse in capacity of R to generate attractive assets (1990s crises).
 - Slowdown in €-zone & Japan (1990s)
- But this doesn't fit 2003-2006 as well, which is the puzzle period (record US Current Account Deficits and low long-term interest rates)

The tour-de-force part: Model is fully developed

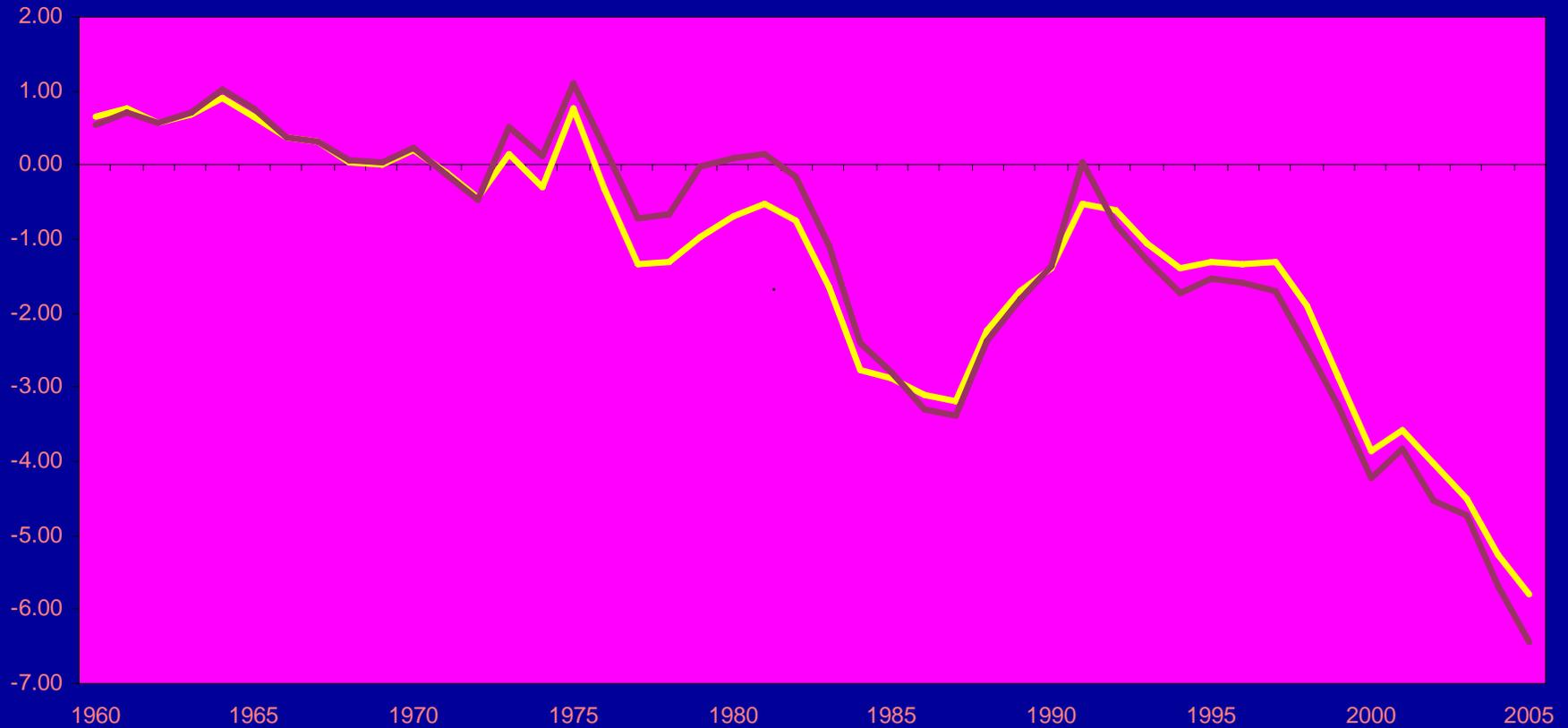
- I like the assumption that only a certain fraction δ of future income can be capitalized into tradable financial assets, and that this varies with the quality of countries' institutions.
- I like too that they build up the model step by step
 - Small country
 - 2-countries: U & E
 - 2 countries: U & R
 - 3 countries
- Allows for various other parameter shifts and extensions, incl. investment slumps & FDI (part 3).

- I won't try to do the model justice in the rest of my comments.
- Instead, will review the global imbalances -- mainstream view vs. dissenters -- before locating CFG in this space.

U.S. trade balance is deteriorating

Fig. 1: U.S. Trade Balance and
Current Account Balance, 1960-2005

percent of GDP



Sources: Department of Commerce (Bureau of Economic Analysis)

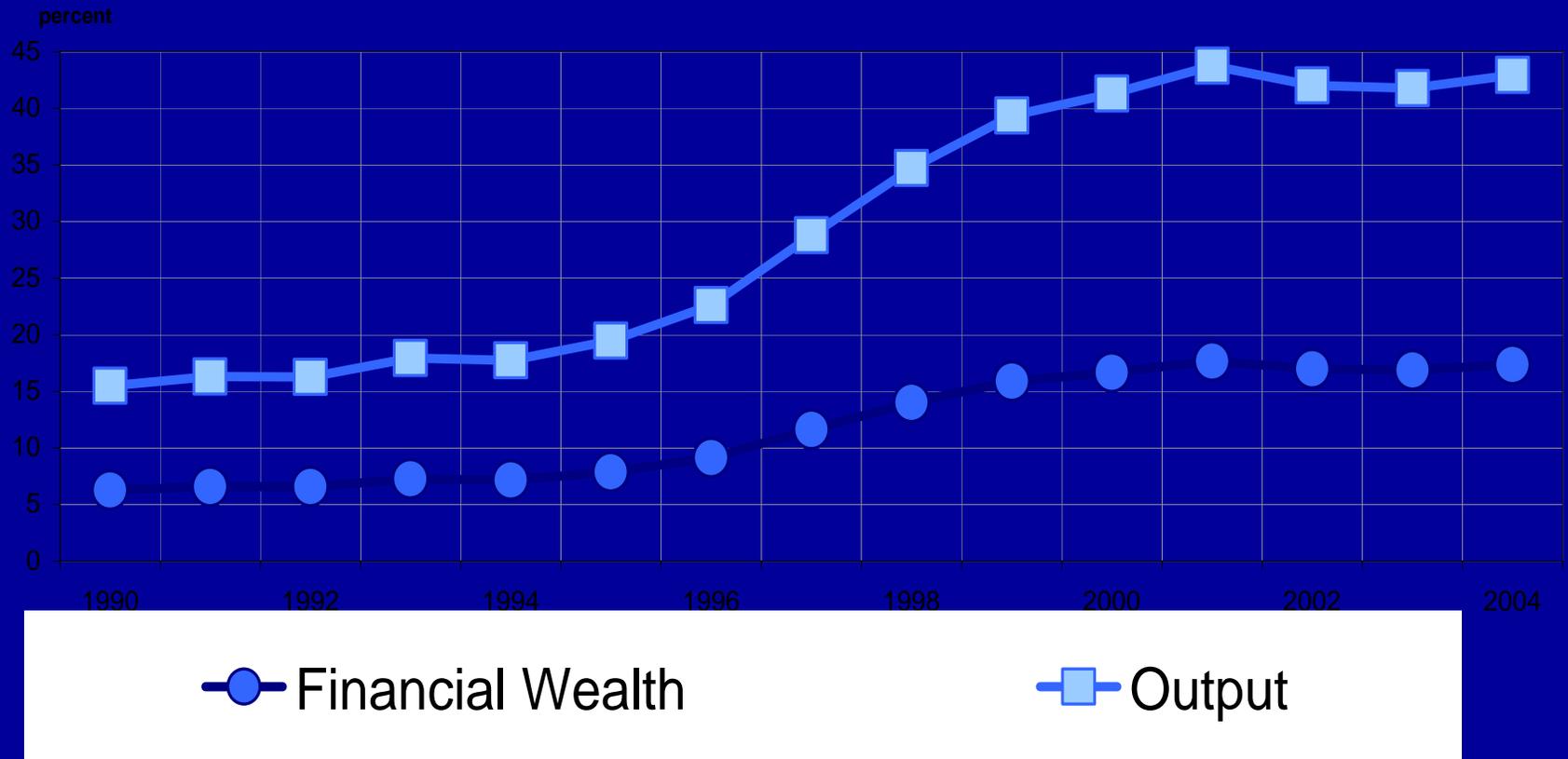
U.S. trade deficit

- **Deficits hit record levels in 2005:**
 - Goods & services = 5.8 % GDP.
 - **Current account = 6 ½ % GDP; 7% likely in 2006**
 - Would set off alarm bells in Brazil or Turkey
- **Short-term danger:**

Protectionist legislation, scapegoating China.
- **Medium-term danger:**
 - Rising dependence on foreign investors => hard landing
- **Long-term danger:**
 - US net debt to RoW now ≈ \$3 trillion.
 - Dependence on foreign central banks may =>
loss of US global hegemony .

\$ share in world portfolios rising

Share of US Assets in Rest of the World's Output and Financial Wealth



Source: Caballero, Farhi and Gourinchas (2006)

If the US were any *other* country...

- The denominator of US debt would be
 - not the size of the world portfolio, but
 - US ability to pay
 - Measured by US GDP, or
 - By US exports or tradable goods production
 - Empirically, exports are the relevant denominator for currency crises -- Cavallo & Frankel (2005).
 - Unfortunate, in light of low US X/GDP ratio -- Obstfeld & Rogoff (2001, 2005)
- Debt ratio paths then appear explosive

Cavallo-Frankel results

Dependent variable: **Sudden Stops** (Calvo def.)

	Probit	IV Probit	IV Linear	IV-GLS RE (linear)
Trade/GDP_t	-0.53 (0.259)**	-2.451 (0.813)**	-0.066 (0.022)***	-0.066 (0.026)**
Foreign Debt / GDP_{t-1}	-0.080 (0.217)	0.196 (0.275)	0.0066 (0.0182)	-0.006 (0.0155)
Liability Dollarizatn_{t-1}	0.316 (0.195)	0.591 (0.256)**	0.027 (0.0169)	0.027 (0.0149)*
CurrentAcct /GDP_{t-1}	-4.068 (1.297)**	-7.386 (2.06)***	-0.317 (0.10)***	-0.317 (0.095)***
Obs.	778	1062	1040	1040

* Statistically significant at 10%, **5%, and *** 1%

Additional Controls: Constant term, Year FE, Regional Dummies, International Reserves / Months of Imports, Institutional Quality, GDP per capita, Short Term Debt, FDI/GDP, Dummy for Exchange Rate Rigidity.

Cavallo-Frankel results

Dependent variable: **Currency Crashes**

	Probit	IV Probit
Trade/GDP_t	-0.57 (0.269)**	-1.73 (0.918)**
Foreign Debt / GDP_{t-1}	0.23 (0.231)	0.59 (0.373)*
Liability Dollarization_{t-1}	0.027 (0.249)	0.18 (0.234)
Exchange Rate Rigidity Index_{t-1}	0.13 (0.094)	0.22 (0.113)*
Ln Reserves in Mo.s of Imports_{t-1}	-0.26 (0.082)***	-0.37 (0.099)***
Obs.	557	841

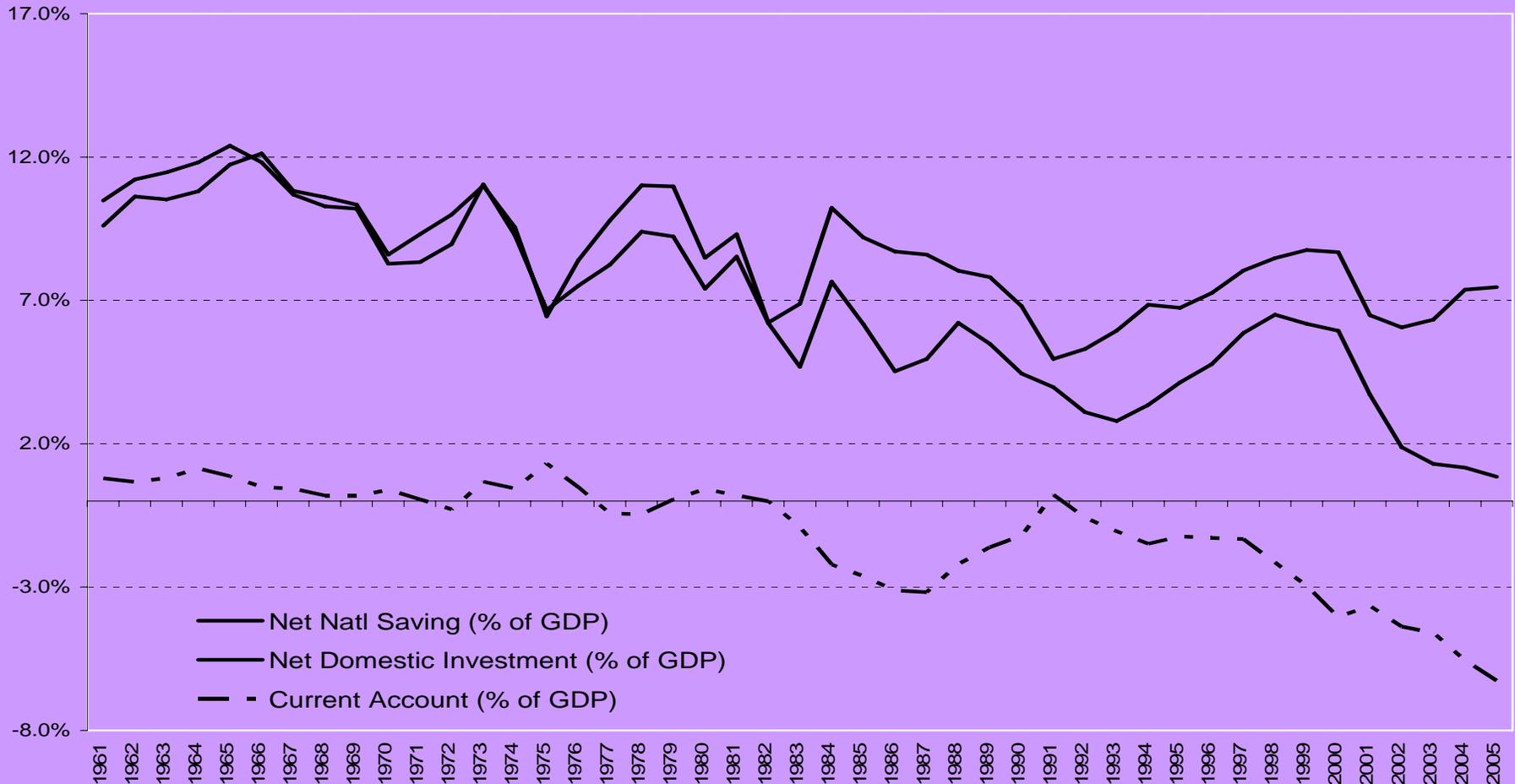
Additional Controls: Constant term, Year FE, Regional Dummies, CA/GDP, Institutional Quality, GDP per capita, Short Term Debt, FDI/GDP.

“Mainstream” View of Origins of US Current Account deficits

- Deficits affected by exchange rates & growth rates.
 - But these are just the “intermediating variables”
 - Perceptive point in CFG paper: “the view that growth of US trading partners is on average similar to that of the US, so that differential growth cannot be a factor in explaining the large capital flows to the US is misguided from our perspective....If those that compete with the US in asset production grow slower and those that demand assets grow faster, then both factors play in the same direction.” (p. 6).
- More fundamentally, the US trade deficit reflects a shortfall in National Saving
 - US CA deficit widened rapidly in early 1980s, & esp. 2001-05, associated with National Saving fall.

National Savings, Investment & Current Account, as shares of GDP

(%) Figure 23.2. U.S. National Saving, Investments and Current Account



Why did National Saving fall in early 1980s, and 2001-05?

- Federal budget balance fell abruptly both times
 - From 1970s deficit = 2% of GDP, **to 5% in 1983.**
 - From 2000 *surplus* = 2% GDP, **to deficits >3% now.**
- According to some theories, pro-capitalist tax cuts were supposed to result in higher household saving.
- But both times, saving actually *fell* after tax cuts.
- U.S. household saving is now < 0 !
- So both components of US National Saving fell.

What gave rise to the record federal budget deficits?

- Bush Administration: Large tax cuts, together with rapid increases in government spending
- Parallels with Reagan & Johnson Administrations:
 - Big rise in defense spending
 - Rise in non-defense spending as well
 - Unwillingness of president to raise taxes to pay for it.
 - Leads to declining trade balance
 - Eventual gradual decline in global role of the \$.

The current bout of fiscal irresponsibility is actually worse than the 1980s

- The retirement of the baby boom generation is that much closer than it was in 1981.
- The national debt is that much higher.
- We now have other new fiscal time bombs as well, e.g., phony sun-setting of tax cuts, need to fix AMT (Alternative Minimum Tax), & exacerbated Medicare shortfall.
- The current administration seems to lack ability -- which Reagan Administration and elder Bush did have -- to perceive when reality diverges from speech-writers' script, & to respond with mid-course correction.
- To the contrary, the White House continues to propose more tax cuts

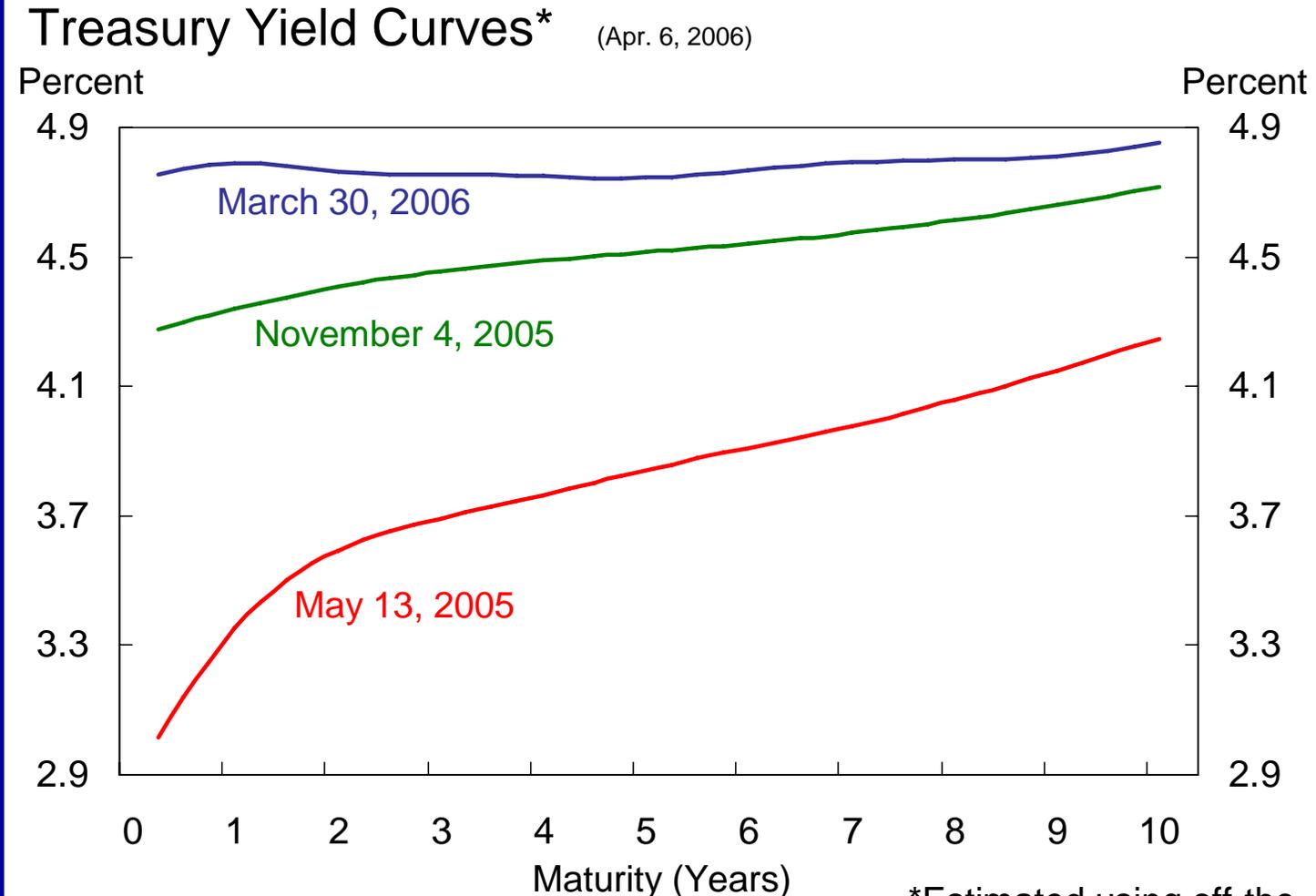
Further, the much more serious deterioration will start after 2009.

- The 10-year window is no longer reported in White House projections
- Cost of tax cuts truly explode in 2010 (if made permanent), as does the cost of fixing the AMT
- Baby boom generation starts to retire 2008
 - => soaring costs of social security and,
 - Especially, Medicare

Conundrum: Then what has kept long-term interest rates low?

- Easy monetary policy by FRB, ECB, BoJ & PBoC has kept short-term rates low since 2001 (Fig.5)
 - Carry trade => money has gone into bonds, stocks, real estate, emerging markets, & commodities.
 - Why no reversal since 2004? Probably bubbles in some markets.
 - Those bubbles may just now be peaking – spring 2006.
- Foreign central banks buying US securities
- Investors have not yet fully understood how bad is the US fiscal outlook (as in Europe & Japan also).
- All three factors are coming to an end soon.
- Prediction: long-term interest rates will rise.

The conundrum: after tightening began in 2004, long-term rates rose much less than short rates; even now the yield curve is still unusually flat.

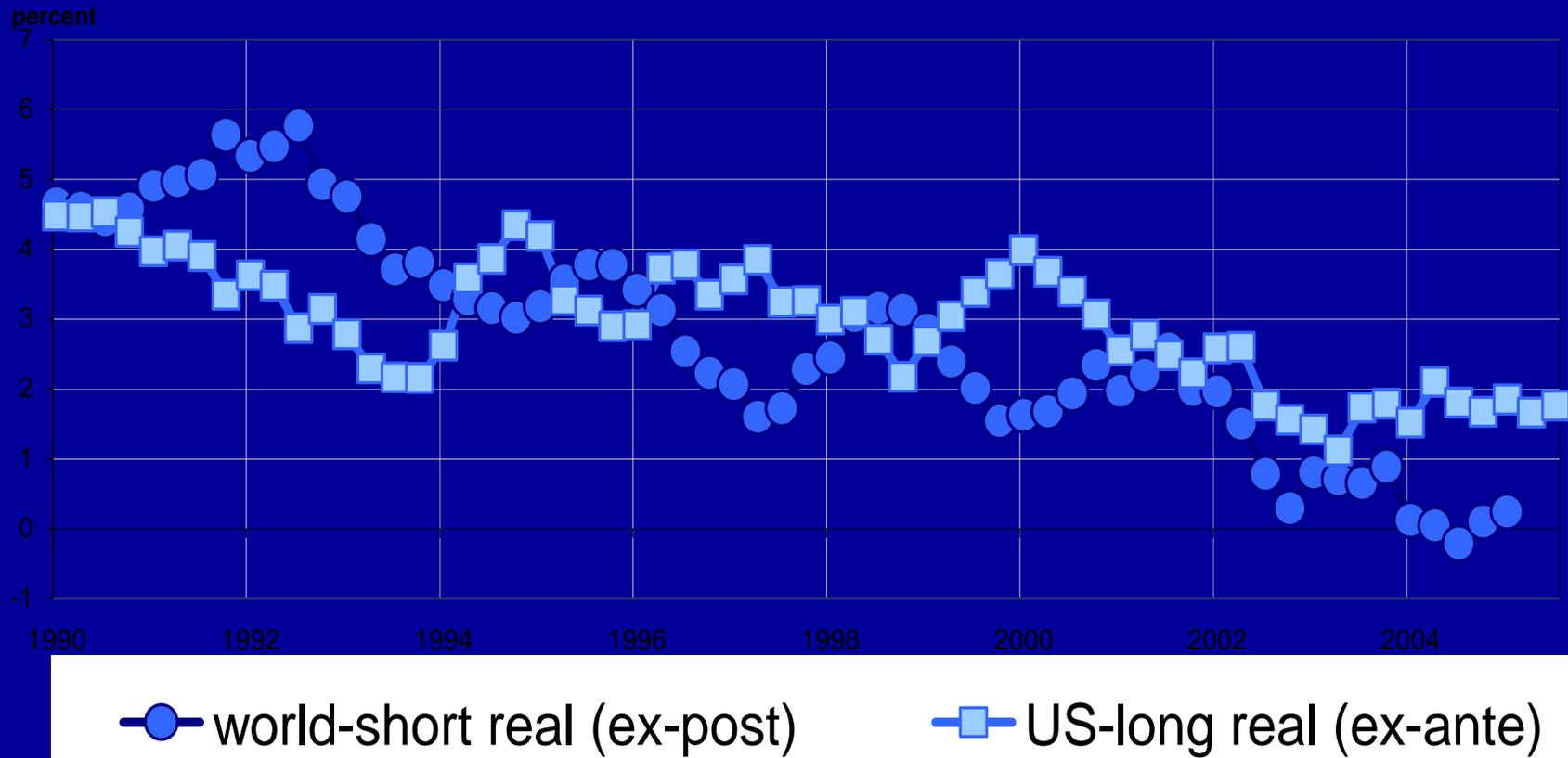


Source: 8:40AM quotes and FRBNY Calculations

*Estimated using off-the-run Treasury securities

Fig. 5: Monetary policy since 2001 has been easy everywhere

World and US real interest rates, 1990-2005



Source: Caballero, Farhi and Gourinchas (2006)

C, F, & G are on a long list of economists have come up with ingenious arguments why we shouldn't worry about the US deficits.

- But I don't buy the arguments.
- I.e., low US national saving is indeed a source of concern.
- Current Account Deficit is not sustainable.

8 challenges to “twin deficits” view

1. The siblings are not twins
2. Alleged Investment boom
3. Low US private savings
4. Global savings glut
5. It's a big world
6. Valuation effects will pay for it
7. “Intermediation rents...pay for the trade deficits”
8. China's development strategy entails accumulating unlimited \$

1. “The ‘**twin deficits**’ view is wrong, because the budget and current account deficits do not always move in lockstep” [1]

- This is a “straw man.”
- The term “twin deficits” does not mean current account & budget deficits *always* move together.
 - Nobody pretends that they do.
 - Of course BD & CAD can move in opposite directions, as in US investment boom of 1990s.
- *But in 1980s & the current decade, U.S. fiscal expansion led to BD and CAD.*

[1] Bernanke (2005) is one of many making this point.

2. Capital flows to US due to favorable investment climate & high return to capital .

- But
 - Current US business investment < 1990s IT boom (or 60s, 70s, & 80s).
 - FDI is flowing *out* of the US not in.
 - In to China, etc.
 - Consistent with Part 3 of CFG (but how does this square with inferior property rights in R)?
 - The money coming in to US is largely purchases of short-term portfolio assets, esp. acquisition of \$ forex reserves.

Foreign central banks finance an increasing share of the US current account deficit

	Δ foreign priv. assets in US	Δ US private assets abroad	Net priv. capital inflow	Δ Foreign official US assets *	Official share of inflow
2000	1004	559	445	43	0.09
2001	755	377	378	28	0.07
2002	678	291	387	116	0.23
2003	611	330	281	278	0.5
2004	1046	860	186	395	0.68
2005	1072	513	559	221	0.28

Billions of dollars.

Source

US BEA & Treasury

* Increasingly, foreign CBs' purchases of \$ are not recorded as such.

3. “Fall in **US private saving** has been as big a part of the fall in national saving as has been the budget deficit.”

- True
- But recall that Bush tax cuts were supposedly designed to be pro-saving (abolition of the estate tax, near-abolition of taxes on dividends & capital gains, etc.).
- That was the excuse for their regressivity.
- As the private saving rate has not subsequently risen, this is a further indictment of our current fiscal policy.
- The same characterization applies to the Reagan tax cuts of 1981: were supposed to boost saving but were instead followed by a fall in US private saving rates.

4. “The problem is a global savings glut, not a US saving shortfall.” [1]

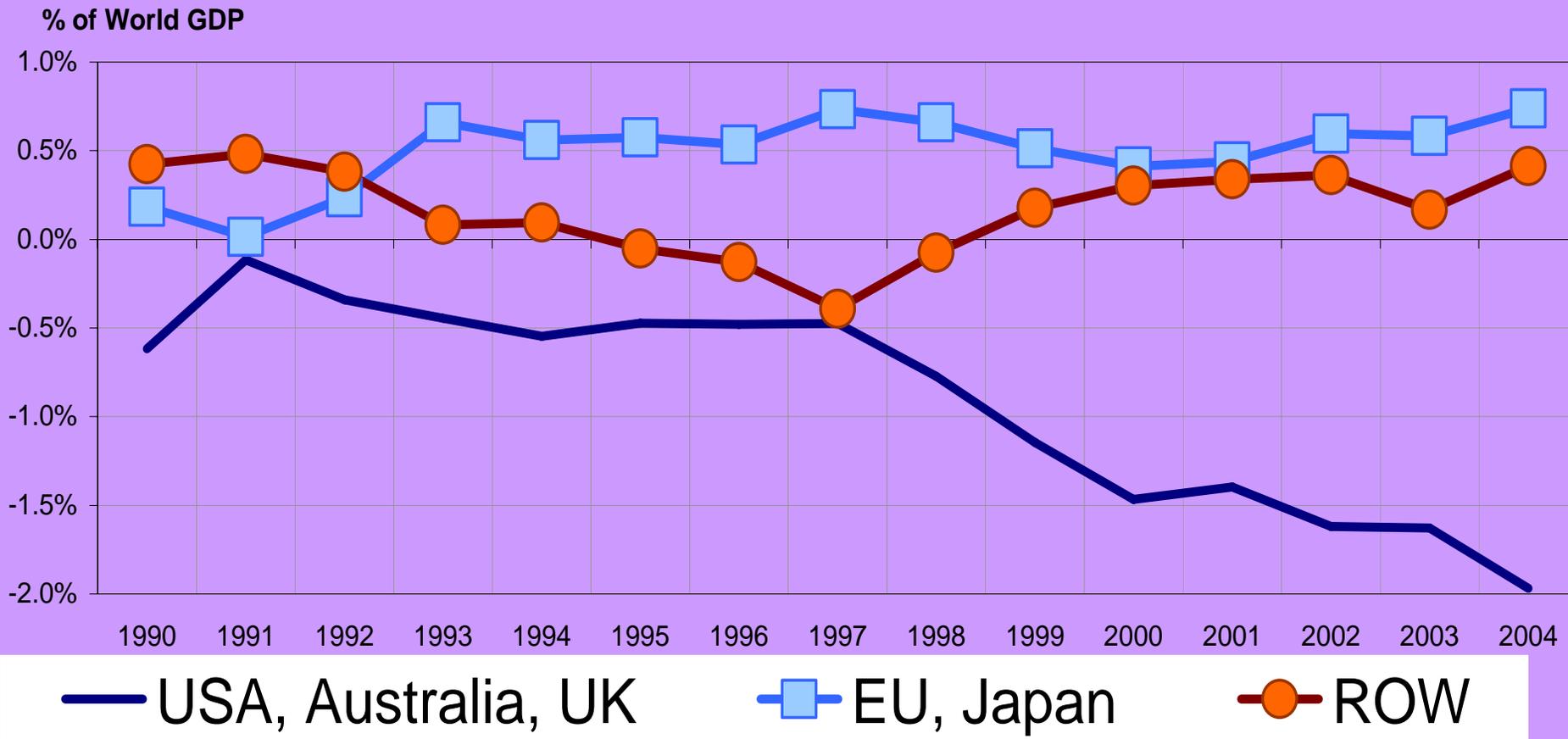
- True, foreign net lending to US is determined by conditions among foreign lenders as much as in US.
- “Savings glut” misleading: Global saving is not really up. [2]
 - Rather, global investment is way down.
 - As in CFG: *R* investment slump
- This pattern is inconsistent with the hypothesis that the exogenous change is an increase in saving abroad: that would have shown up as a rise in investment.
- The pattern is consistent, rather, with the hypothesis that the US shortfall is sucking in capital from rest of world.

[1] Again, Bernanke (2005)

[2] Japan’s household saving rate = 7% of disp.income, vs. 23% in 1975.
True, overall saving/GDP outside US had by 2004 climbed to a level slightly > that of 1990s (while still < 1980s).

True, Current Account surpluses in partner countries are half the story.

Current Accounts



5. “It’s a big world.”

- Alan Greenspan, Richard Cooper & others:
- world financial markets are big, relative even to the \$3 trillion of US debt, & increasingly integrated.
- => Foreign investors can bail us out for decades.
- If foreign investors keep moving, even slowly, toward fully diversified international portfolios (away from “home country bias” in their investments), they can absorb US current account deficits for a long time.
- True. **But**, as already noted,
 - When it comes to default or country risk, GDP or exports are more relevant denominators for debt than is global portfolio size.
 - Debt dynamics => US Debt/Export ratio on explosive path.

6. US current account deficit need not imply rising debt & debt-service

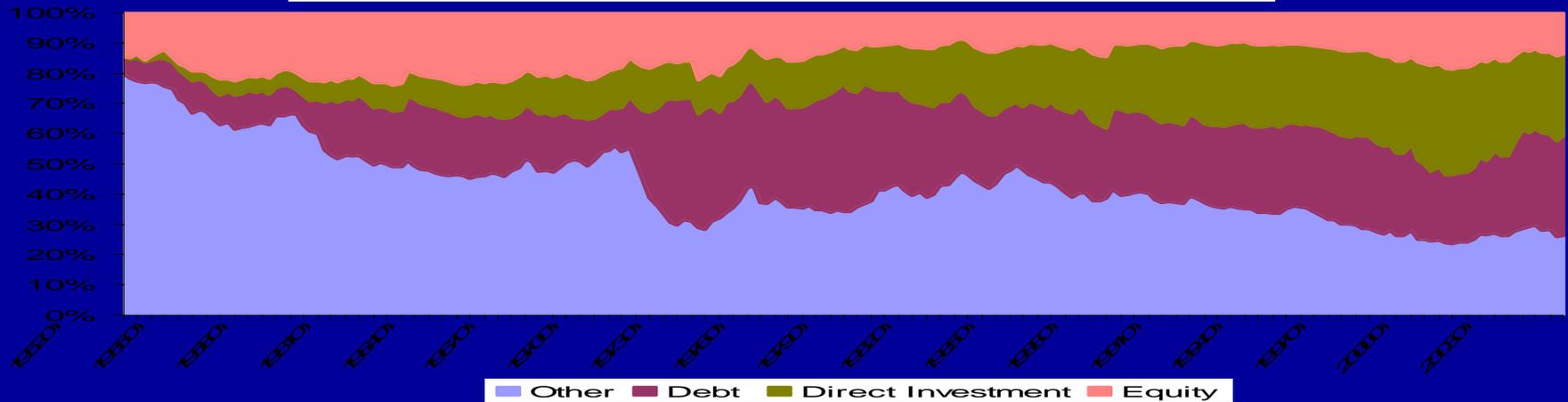
- Lane & Milesi-Feretti (2005) compute valuation effects.
- Gains in \$ value of assets held abroad, particularly via \$ depreciation => US net debt has risen “only” to \$3 trillion, despite much larger increase in liabilities to foreigners.
- *But how many times can the US fool foreign investors?*

7. Despite years of deficits, net investment income is still in surplus

- US earns a higher rate of return on its assets abroad (especially FDI) than it pays on its obligations (especially treasury bills).
 - In 1960s, Kindleberger said US was World Banker, taking short-term deposits & investing long-term.
 - Gourinchas & Rey (2005) call US global “venture capitalist.”
- Hausmann & Sturzenegger (2006) speak of “dark matter,” by which they mean US hidden assets of know-how that are not properly reflected in service export numbers.
- Cline (2005) calls the US an *economic* net creditor, though a net international debtor in an accounting sense.

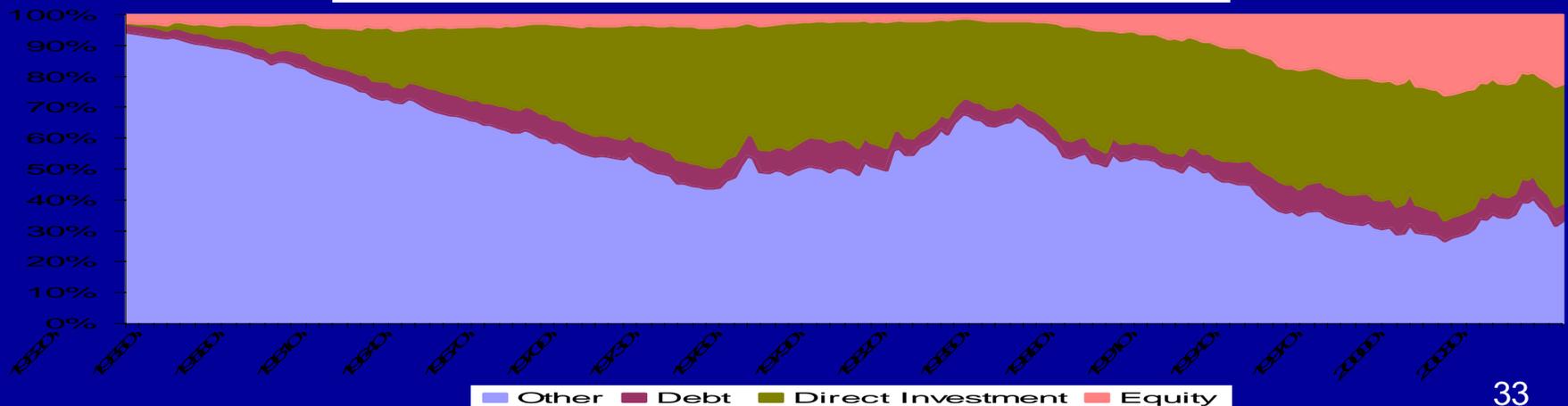
Composition: US assets give more weight to high-return equity & FDI than do US liabilities

**Composition of U.S. Gross External Liabilities
1952:1-2004:1**



Source: Gourinchas and Rey (forthcoming, 2006)

**Composition of U.S. Gross External Assets
1952:1-2004:1**



Source: Gourinchas and Rey (forthcoming, 2006)

Some of these arguments rely on \$ retaining its unique role in world monetary system forever

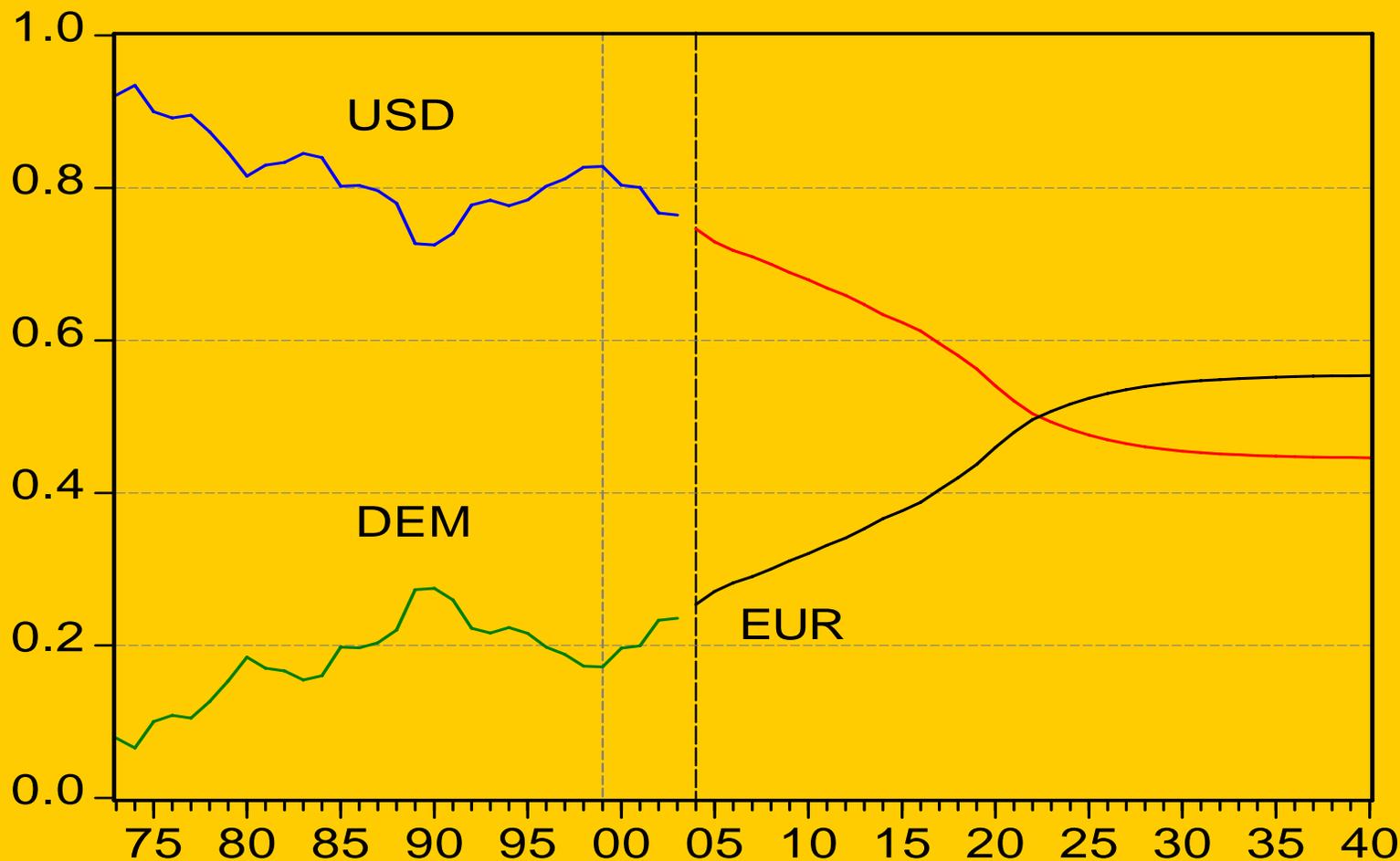
- The French in the 1960s called it the “exorbitant privilege”: the rest of the world gives up real goods and companies in exchange for pieces of paper (\$).
- Arguments assume that the \$ stays premier international reserve currency held by central banks, and that the US treasury security market will continue to be the preferred liquid asset for private investors as well.
- Has been true since World War II, but one can no longer assume that it will necessarily always be true: € now exists as a plausible rival for the longer term.
- US could lose hegemony.

Chinn & Frankel (2006)

Simulation of shares in central bank reserve holdings

Case 2, Scenario D:

Assumes no entry of UK, Sweden, or Denmark into €;
& continued depreciation of \$ at 2001-04 rate.



8. “China’s development strategy entails accumulating unlimited dollars.”

- The Deutschebank view
(Dooley, Folkerts-Landau, and Garber, 2005)
- Today’s system is a new Bretton Woods, with Asia playing role that Europe played in 1960s.
- I think that much is right.
- DFL ideas original: China is piling up \$ not because of myopic mercantilism, but as part of an export-led development strategy that is rational given China’s need to import workable systems of finance & corporate governance.

But it is not sustainable.

- It may be a Bretton Woods system, but we are closer to 1971 (date of collapse)
 - than to 1944 (date of BW agreement)
 - or 1958 (when convertibility first restored).
- (1) Capital mobility is much higher now than in 1960s.
- (2) The US can no longer necessarily rely on support of foreign central banks, either economically or politically.
- (3) China eventually will have to develop a workable domestic system of finance and corporate governance, or else suffer a domestic banking crisis.
 - => an end to excess liquidity pouring from China to US

Where do Caballero, Farhis & Gourinchas fit in?

- They take as given US comparative advantage in ability to generate financial assets that others want to hold.
- Similar to arguments under #7 about unique position of US as: World Banker, supplier of intermediation services, owner of #1 international currency, beneficiary of exorbitant privilege, recipient of flight to quality...
- Why is one on firmer ground taking any of these exceptionalisms as exogenously & eternally given, than considering that the willingness of foreigners to hold \$ may be an unsustainable disequilibrium ?
- Assumption of $\delta_R \downarrow$ fits late 1990s better than 2003-06.

An Equilibrium Model vs. a Disequilibrium Reality

When events depart from conventional economics, do you revise the theory, or predict that events will soon fall in line?

- Temptation sometimes to revise the theory too quickly.
- Examples
 - Stock markets
 - US undervalued in 1980, overvalued in 2000
 - Japan overvalued (& land) in late 1980s
 - Exchange rates
 - \$ overvalued in 1985, ¥ in 1995
 - € undervalued in 2002
 - Emerging market spreads
 - Too low in 1981, 1996, 2005
- In each case:
 - new theories – both academic & popular – were invented.
 - But reality re-asserted itself within a few years.
- Perhaps bond markets were “too high” (interest rates too low) in 2005, and are still.

Questions: Can CFG model explain

- Foreign central banks' reserves an increasing fraction of capital inflow since 2000.
- Interest rates even lower in Europe, Japan and China than in US; and
- High capacity during 2001-06 of R to generate assets that others *do* want (not as in 90s crises) ?
?

Addenda

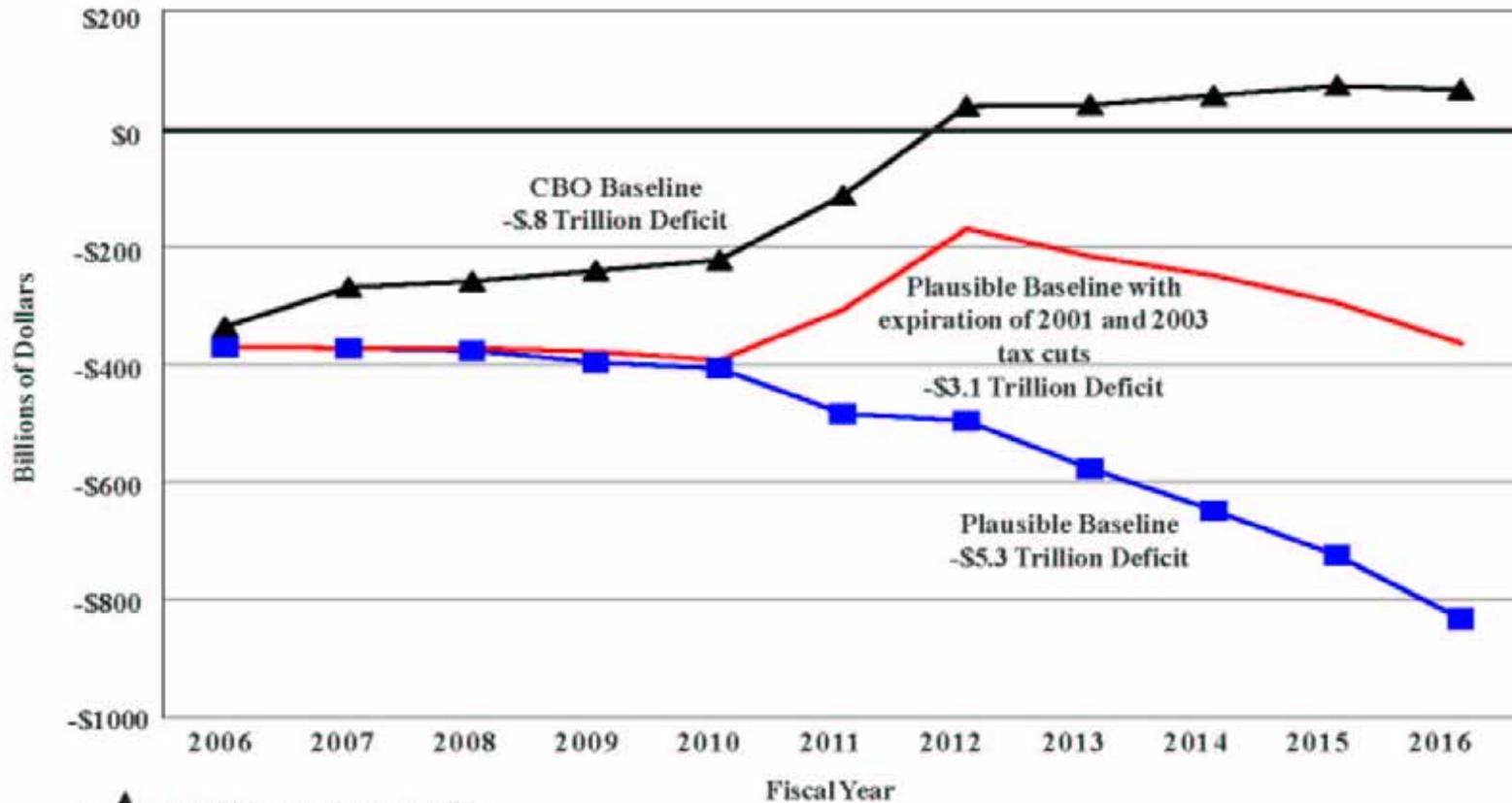
- Addendum 1:
The “Starve the Beast” hypothesis and mis-forecasting US budget deficits
- Addendum 2:
Possible loss of US hegemony
- Addendum 3: The RMB

White House forecast of cutting budget deficit in ½ by 2009 will not be met

- WH projections released in Feb. still do not allow for:
 - the ongoing cost of Iraq
 - Fixing the Alternative Minimum Tax
 - Making tax cuts permanent as it has asked for
 - More realistic forecasts of spending growth, e.g., in line with population. (Actual spending growth since 2001 has far exceeded even that.)
- More likely, deficits will not fall at all.

Baseline Deficit Projections: January 2006

Fiscal Years 2006-2016



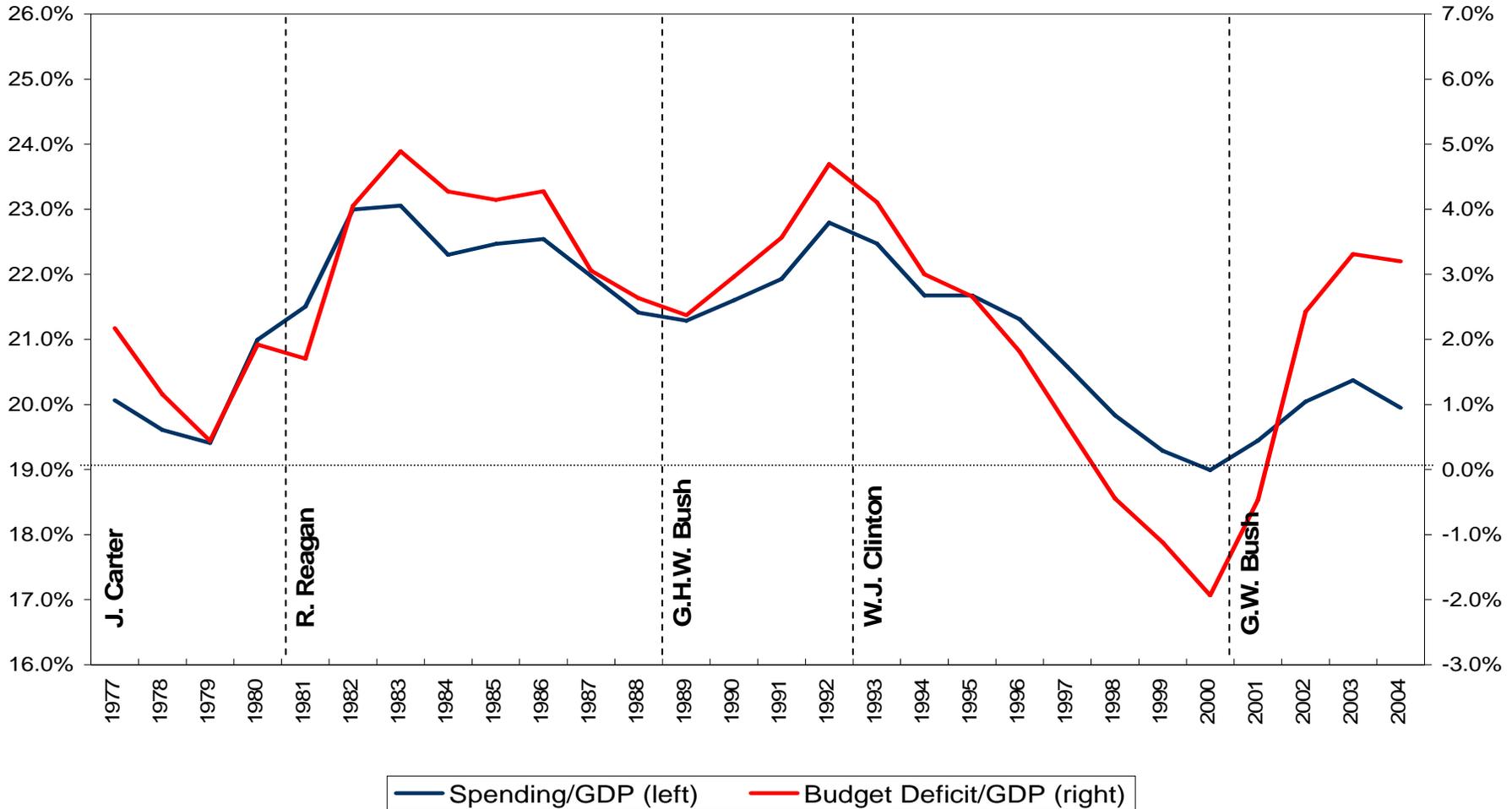
-  CBO January 2006 Baseline
-  Concord Plausible Baseline with assumed scheduled expiration of 2001 and 2003 tax cuts.
-  Concord Plausible Baseline assumes that discretionary spending grows at the rate of nominal GDP minus the 2005 supplemental appropriations, that continued operations in Iraq and Afghanistan are gradually scaled back to about a third the current level, and that all expiring tax provisions are extended with AMT relief.



What about the “Starve the Beast” hypothesis?

- Starve the Beast claim: tax revenue ↓ => spending ↓.
“Congress can’t spend money it doesn’t have” (!)
- History shows that the claim does not describe actual spending behavior. The pattern:
- Spending is only cut under a regime of “shared sacrifice” that simultaneously raises tax revenue (regime of caps & PAYGO in effect throughout 1990s).
- Spending is not cut under a tax-cutting regime (1980s & current decade).
- See Figure 2.

Fig. 2: US Federal Budget Deficit and Spending as % of GDP.



Addendum 2:

Possible loss of US economic hegemony.

- US \$ can no longer necessarily rely on the support of foreign authorities.
- China may allow appreciation of RMB, as US politicians demand.
- Even if China keeps RMB undervalued, it can diversify its currency basket out of \$
 - There now exists a credible rival for international reserve currency, the €.
 - Chinn & Frankel (2005): under certain scenarios, the € could pass the \$ as leading international currency.
 - US would lose, not just seignorage, but the exorbitant privilege of playing “banker to the world “

Possible loss of US political hegemony.

- In the 1960s, foreign authorities supported \$ in part on geopolitical grounds.
- Germany & Japan offset expenses of stationing U.S. troops on bases there, so as to save the US from balance of payments deficit.
- In 1991, Saudi Arabia, Kuwait, & others paid for the financial cost of the war against Iraq.
- Repeatedly the Bank of Japan bought \$ to prevent it from depreciating (e.g., late 80s)
- Next time will foreign governments be so willing to bail out the U.S.?

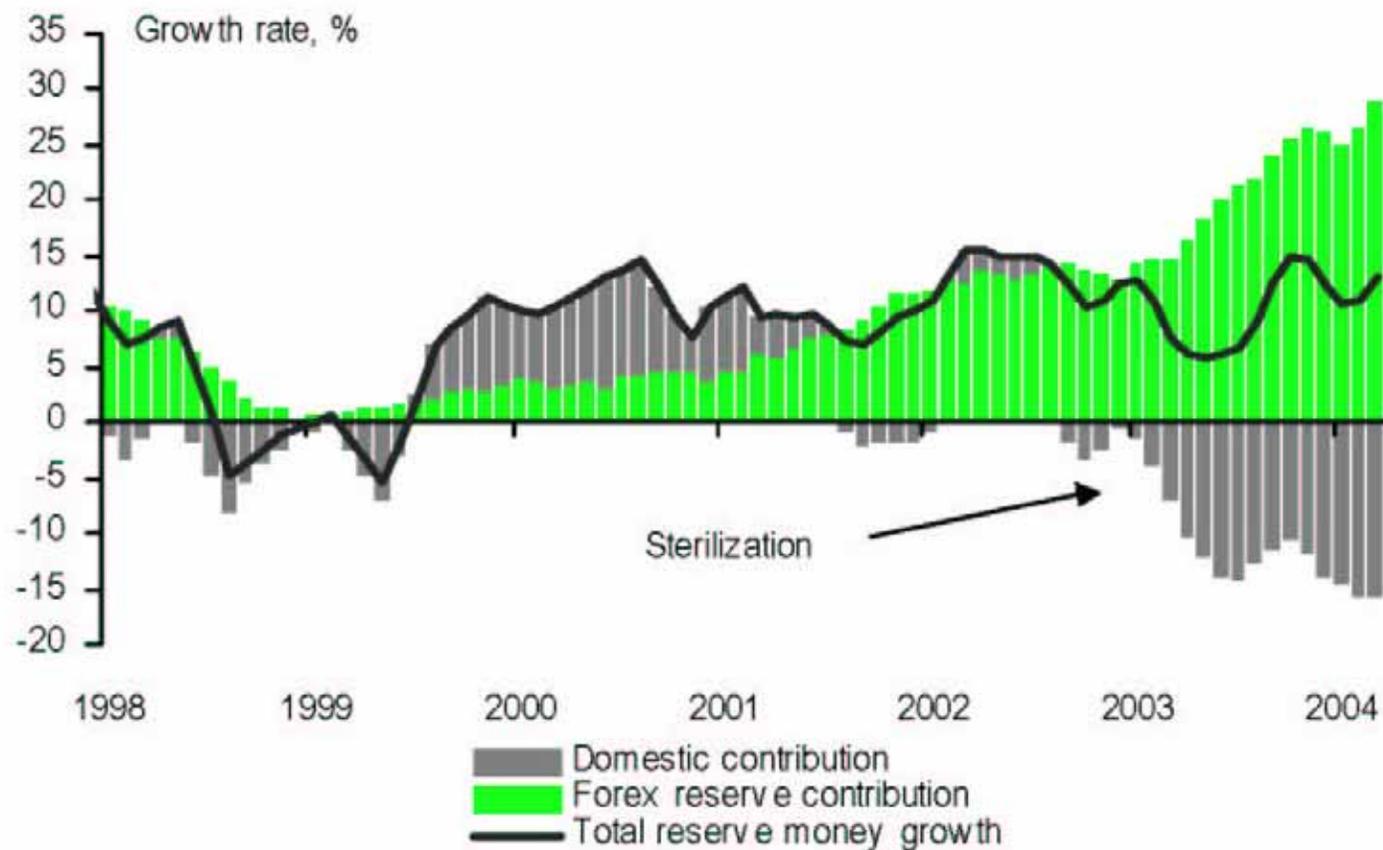
Historical precedent: £ (1914-1956)

- With a lag after US-UK reversal of ec. size & net debt, \$ passed £ as #1 international currency.
- “Imperial over-reach:” the British Empire’s widening budget deficits and overly ambitious military adventures in the Muslim world.
- Suez crisis of 1956 is often recalled as occasion when US forced UK to abandon its remaining pretensions to an independent foreign policy;
- Important role played by simultaneous run on £.

Addendum 3: Five reasons China should let RMB appreciate, in its own interest

- Excessive reserves (> Japan's)
 - Although a useful shield against currency crises, by now China has enough, and US treasury securities do not pay a high return.
 - It becomes harder to sterilize the inflow over time.
- True, can attain external balance with just spending policy, but 2nd goal is internal balance; to attain both, need 2 policy instruments.
- Avoiding crisis:
 - Experience suggests it is better to exit from a peg when times are good and the currency is strong, than to wait until the currency is under attack.
- RMB undervalued by Balassa-Samuelson.

DOMESTIC STERILIZATION POLICY -- China 1998-2004



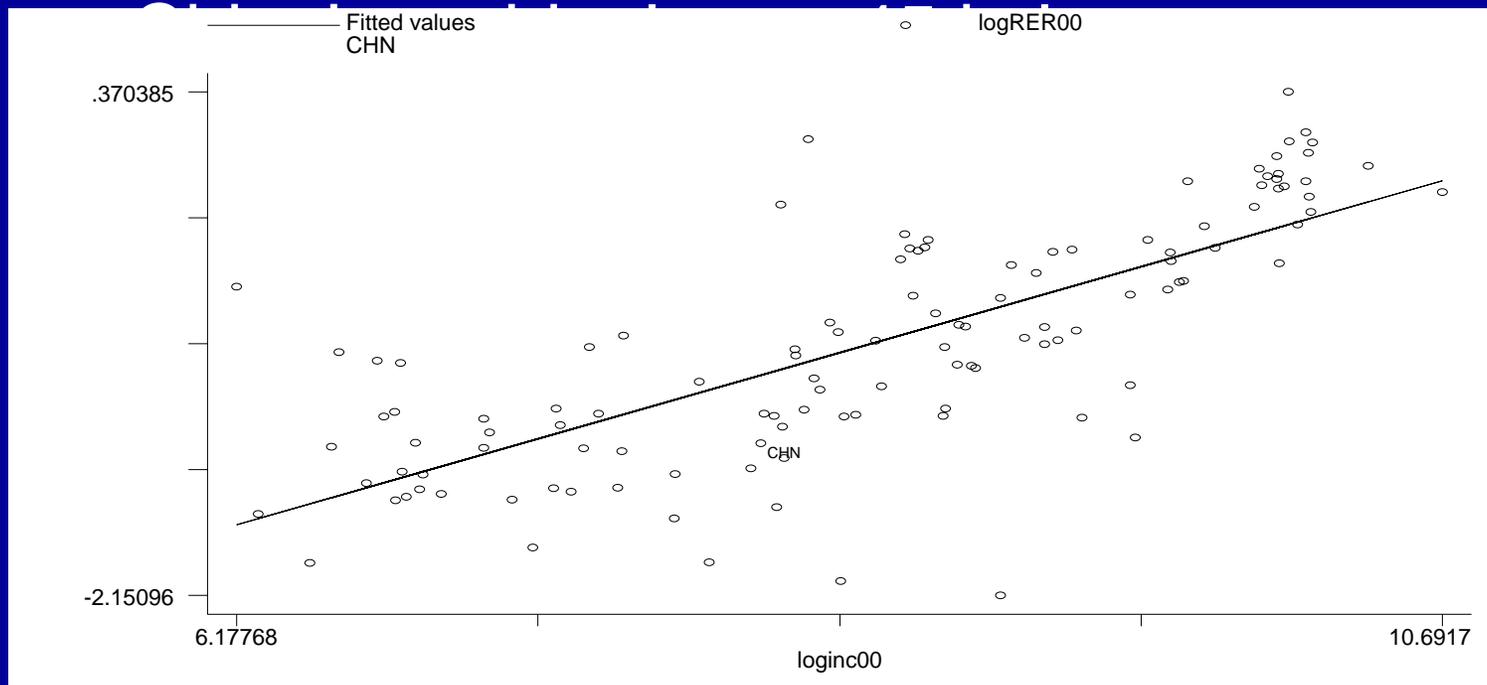
Source: UBS estimates

Longer-run perspective: Balassa-Samuelson relationship

- Prices of goods & services in China are low
 - not just low relative to the United States (.23)
 - but also low by standards of Balassa-Samuelson relationship estimated across countries (which predicts .36).
- In this specific sense, the yuan was undervalued by approx. 35% in 2000
 - and is by at least as much today.
 - But doesn't imply need for sudden change of this size

Estimation of B-S relationship for 2000 (118 countries, PWT)

- For every 1% increase in real income/capita (relative to US), prices increase .38% (relative)



Does B-S relationship have predictive power?

- Typically across countries, gaps are corrected halfway, on average, over subsequent decade. => 2.2% /yr. for China
- => 4 % real appreciation per year, including effect of further growth differential of 6%
- Correction could take the form of either inflation or nominal appreciation, but the latter is preferable.

How should changes in real exchange rate, when necessary, be achieved?

- For a very small, open economy
 - advantages of keeping E fixed are large.
 - Adjustment may take place via prices instead
 - Example: Hong Kong
- For a large economy like China, it makes more sense to adjust E than to adjust prices

What should new regime be?

- No need for pure float.
- China is an example of why the Corners Hypothesis is wrong
- Band or target zone may be best
- With what as anchor?
 - Advantage of dollar: simple and transparent
 - Advantage of basket: better diversification
 - Asia currently lacks a good anchor currency.

What about the currency reform announced in July 2005?

- Tactically well-timed to head off Schumer
- The 2 ½% appreciation against \$ is trivial, vs. 2005 appreciation of \$ against € & ¥.
- China did not in 2005 do what it said:
 - basket peg (with cumulatable +/- .3% band)
 - De facto weight on \$ still 100% (estimates by Wei & others)
 - It's a good time to switch to true basket peg, before \$ resumes its depreciation against € & ¥.
- China will take further gradual steps, before long
 - It's just a matter of Hu and Wen.
 - If China ever gave us what we say we want we'd regret it.
 - esp. if it included reserve shift to match switch in basket wts.
 - US TB & employment wouldn't rise, but US interest rates would.

The post-July-2005 de facto regime for the RMB (Frankel & Wei 2006)

(1) What is estimated weight on \$, vs. other 11 currencies?

7/22-10/31/05	11/1/05-1/31/06	2/1-4/26/06.
0.99	0.97	0.67

(2) How much variability is allowed around the central peg?

	7/22-10/31/05	11/1/05-1/31/06	2/1-4/26/06
SER RMB	0.0003	0.0002	0.0004

For comparison, over the whole sample,

SER yen (a known floater) 0.0036

SER HK \$ (a known pegger) 0.0002 .

I.e., RMB is still as tightly pegged as HK \$, even if basket has started to give less weight to US \$ since January.