Coping with Asia's Large Capital Inflows

in a Multi-speed Global Economy

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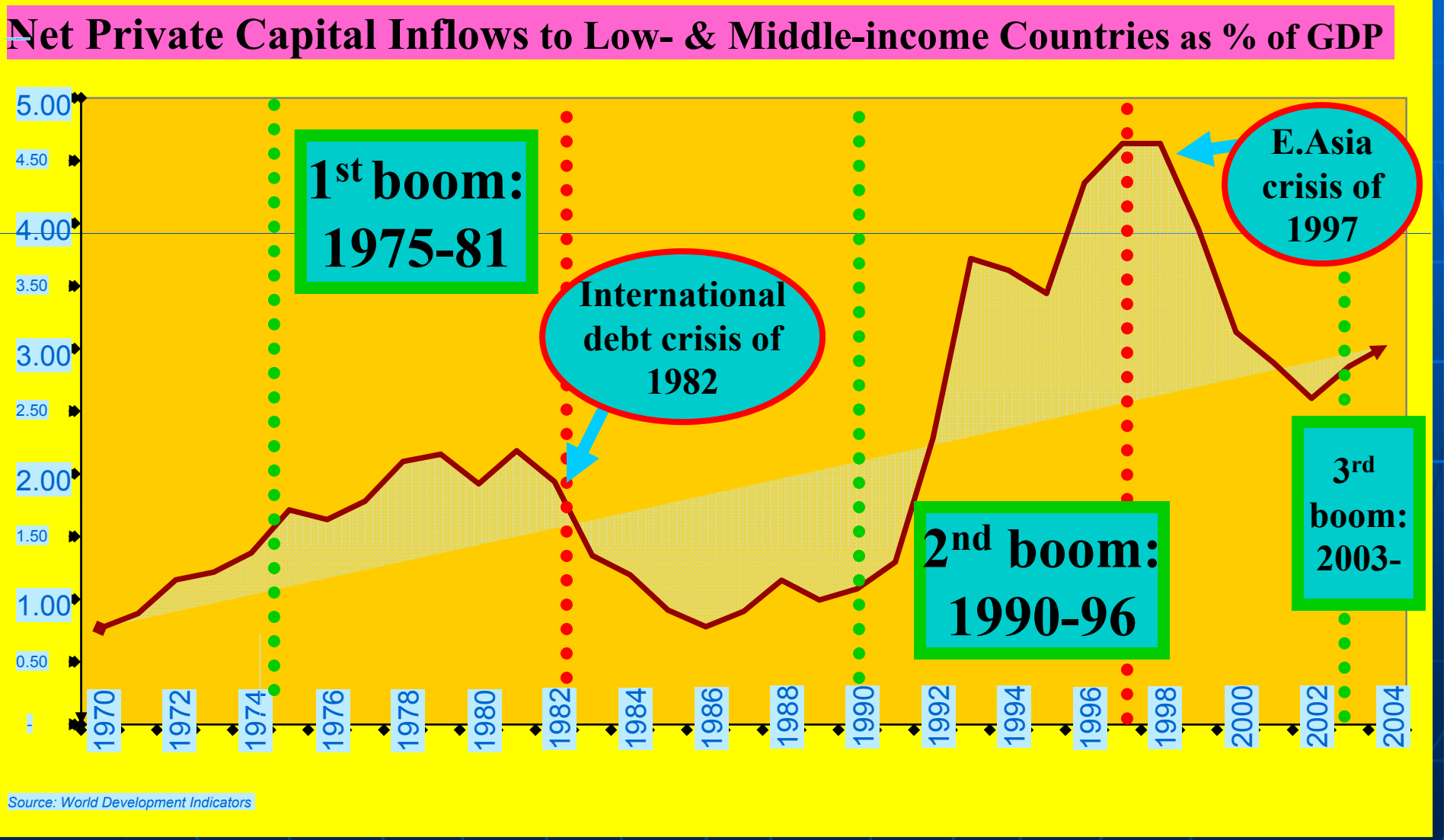
Bali, Indonesia, March 11, 2011

We have seen three big cycles of capital flows to developing countries since 1975

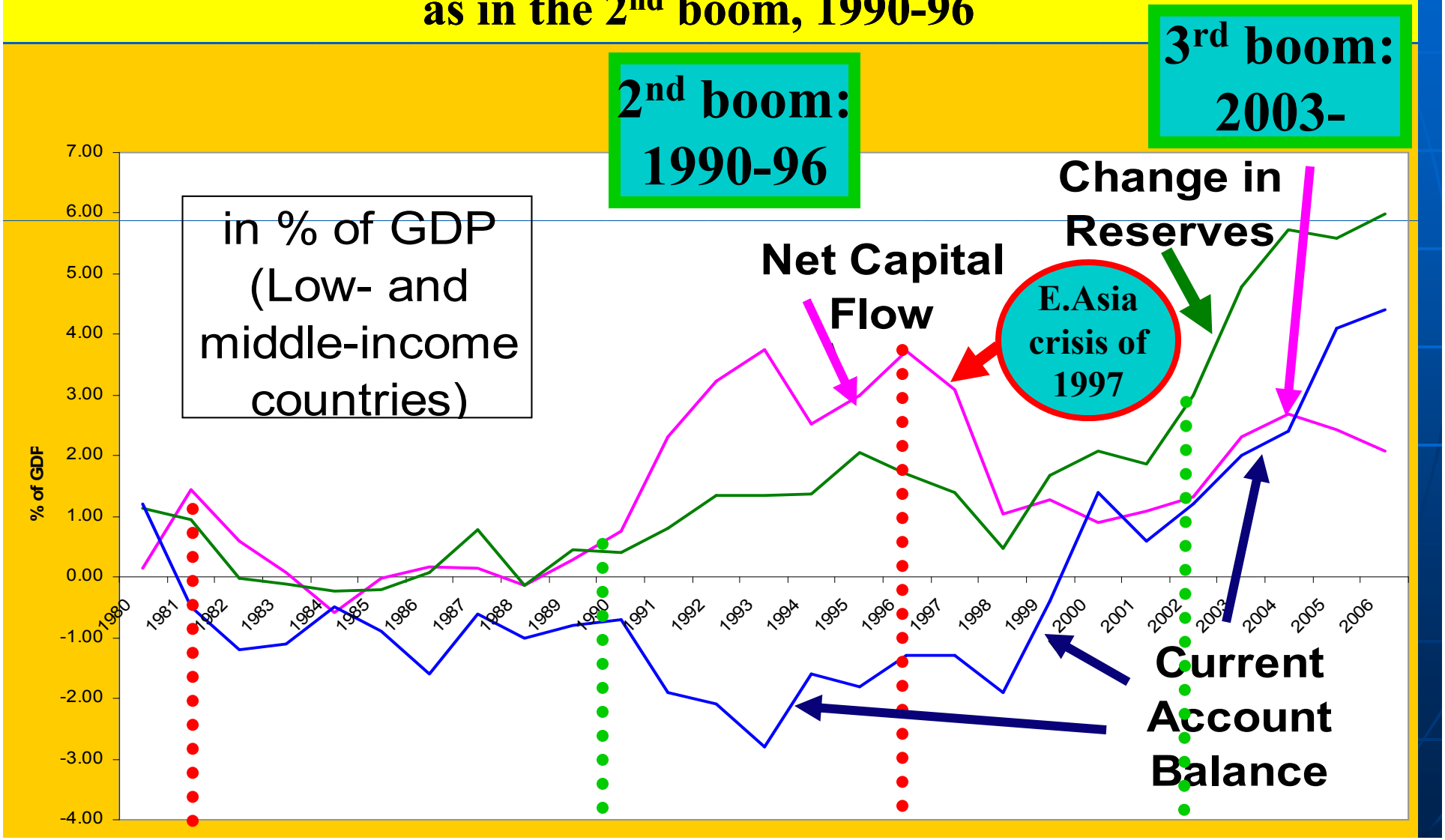
- **(I) Recycling petrodollars 1975-81 --**
  - ended in the international debt crisis of 1982,
  - and the lost decade 1982-89 (in Latin America).
- **(II) The emerging markets boom 1990-96 --**
  - ended in the East Asia crisis of 1997-98
  - and then others, 1998-2002: Russia, Brazil, Argentina & Turkey.
- **(III) The carry trade boom of 2003-08 --**
  - suspended in the Global Financial Crisis of 2008-09.
- Presumably the renewed flows of 2010 count as the beginning of a 4th wave (vs. a continuation of the 3rd).

The first two complete cycles



In the 3rd boom, 2003-08, countries used the inflows to build up forex reserves,

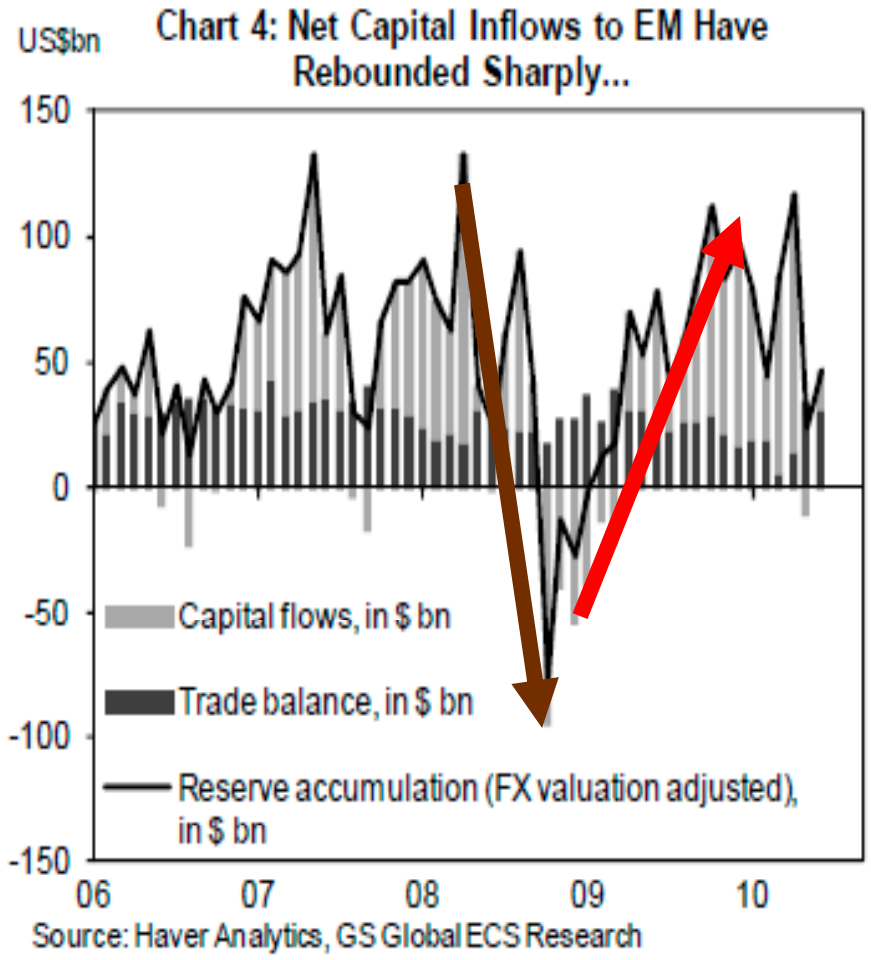
rather than to finance current account deficits as in the 2nd boom, 1990-96

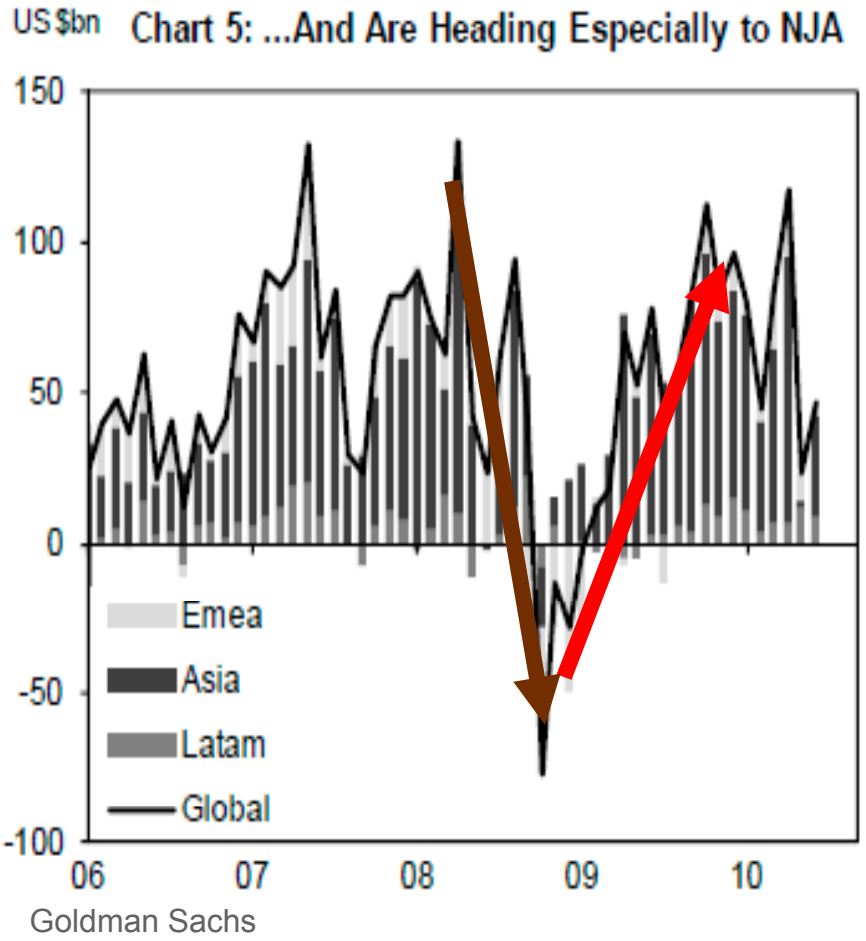


4th Wave: Capital flows to emerging markets

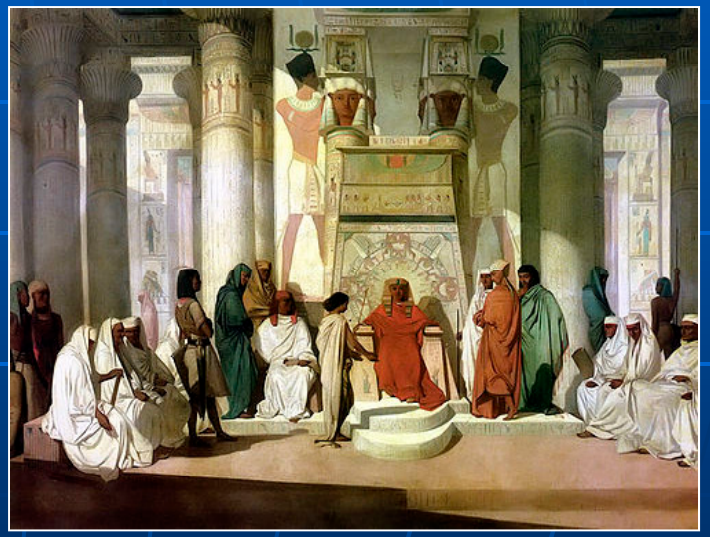
recovered quickly from the 2009 recession, esp.Asia.

These countries again show big balance of payments surpluses.





One could be sensationalist, and warn of a repetition of the crashes of 1982 & 1997.



- If I were superstitious I might say that the cycle is 15 years,
  - 7 fat years followed by
  - a crisis and then 7 lean years,
- implying that we were due for another Emerging Market (EM) crisis as soon as 2012!

- More seriously, caution is always appropriate.
- Although the phrase "two speed" or "multi speed" global economic growth neatly captures the reality of a better growth outlook in Asia (non-Japan)
  - and among other EM & developing economies,
  - than among industrialized countries,
- it would worry me if anybody thought this was the full explanation for current capital flows.

Yes: 2-speed growth

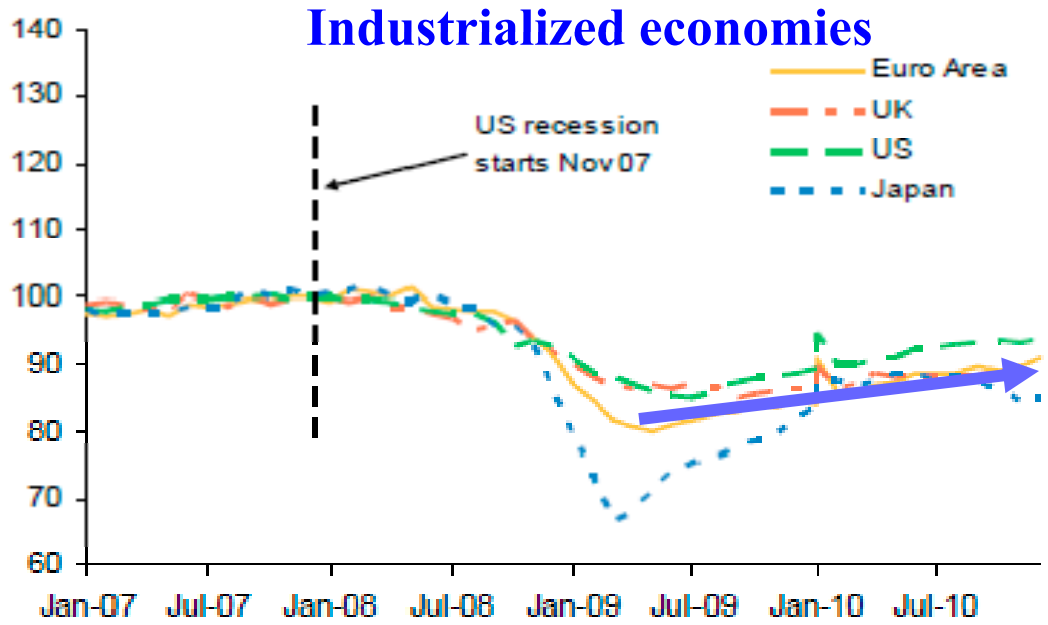
Industrial production by end-2010 had not yet re-attained pre-recession peaks among industrialized economies,

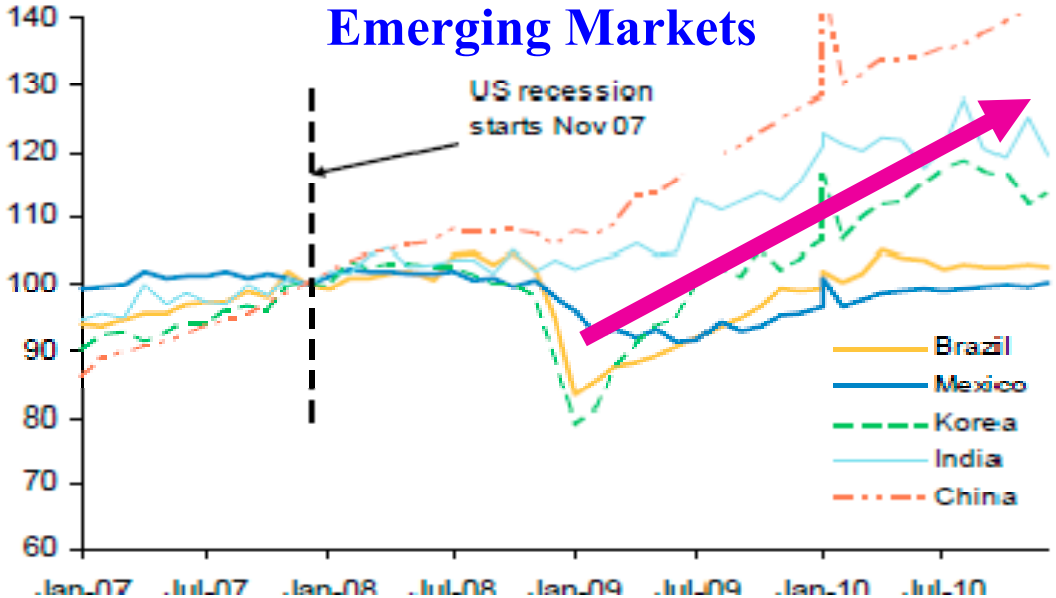
but was back on its rapid growth trajectory among emerging markets.

MORGAN STANLEY RESEARCH
Alan Taylor & Manoj Pradhan
February 16, 2011
Emerging Issues – Global EM Economics
The Great Rebalancing

Two-Track Economic Recovery in DM and EM

Industrial Production excl. construction (Jan'08=100)





- But to attribute the capital flows *entirely* to good EM growth prospects would neglect the equally important and well-known role of global financial market conditions.

- I do not think anybody is forgetting this:
  - We hear so much about hot money & the carry trade
  - and even attacks on the Fed
    - in the "currency wars."

Historically, low US real interest rates have played some role in encouraging each capital market boom

Let's review briefly:

- (I) The inflation peak of 1979
- (II) Calvo-Leiderman-Reinhart 1990s warning
- (III) The "reach for yield" of 2003-07.
- Today's "hot money" concerns.

History (I)

- The Volcker monetary tightening of 1980-82 raised real interest rates from <0 in 1979 to ≈10% ,
- helping precipitate 1982's international debt crisis.
- Not that it wasn't necessary, to fight inflation,
- and not to forget the crisis' *fundamental* causes:
  - entrenched habits in developing countries
    - of excessive budget deficits, debt, and monetization.

History (II)

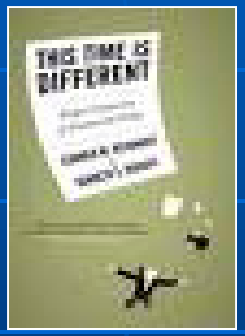
When capital flooded into EMs in the early 1990s,

- many, quite plausibly, attributed it to new fundamentals, especially market reforms:
  - macroeconomic stabilization
  - trade liberalization
  - capital account liberalization
  - privatization.

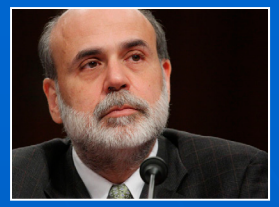
- Calvo, Leiderman & Reinhart (1993) pointed out that low US interest rates were at least as important a cause,
- implicitly warning of an eventual repeat of 1982.

History (III)

- "This Time is Different" is a phrase now famous as the title of the book by Reinhart & Rogoff.
- But Ken Rogoff originally used it as the title of a 2004 article ("This Time It's Not Different," *Newsweek Internl.*, 2/16/04).
- where it referred specifically to the under-estimation of risk by investors going into Emerging Markets, as reflected in low spreads.



- Perhaps influenced by low U.S. interest rates:
  - => reach for yield => under-estimation of risk
  - => carry trade => spreads too low (below 200 basis pts by 2007).



- The crisis we got in 2009
  - originating in the US, yet strengthening the $
- was not precisely the crisis we warned of
  - a hard landing for the $, which was to hit US bonds & emerging markets particularly badly.
- But the claim that financial markets had grossly underestimated global risk turned out to be right.
- My own view of recent attacks on the Fed:
  - The Fed's reduction in interest rates virtually to 0 was the right response to the severe recession that hit the world economy in the last quarter of 2008,
  - QE2 in late 2010 was the right response to continued US weakness,
  - and floating rates can accommodate the difference for countries where the problem is now inflation.
  - Monetary ease is not a beggar-thy-neighbor policy.

- Implications:
  - Never assume that the cycle is dead.
  - The 4th boom will not last forever.
  - Beware exogenous world financial conditions.
- But it is not my intention to be a pessimist. I turn now to some happier thoughts, before suggesting what we can learn from recent history for how to manage these inflows.

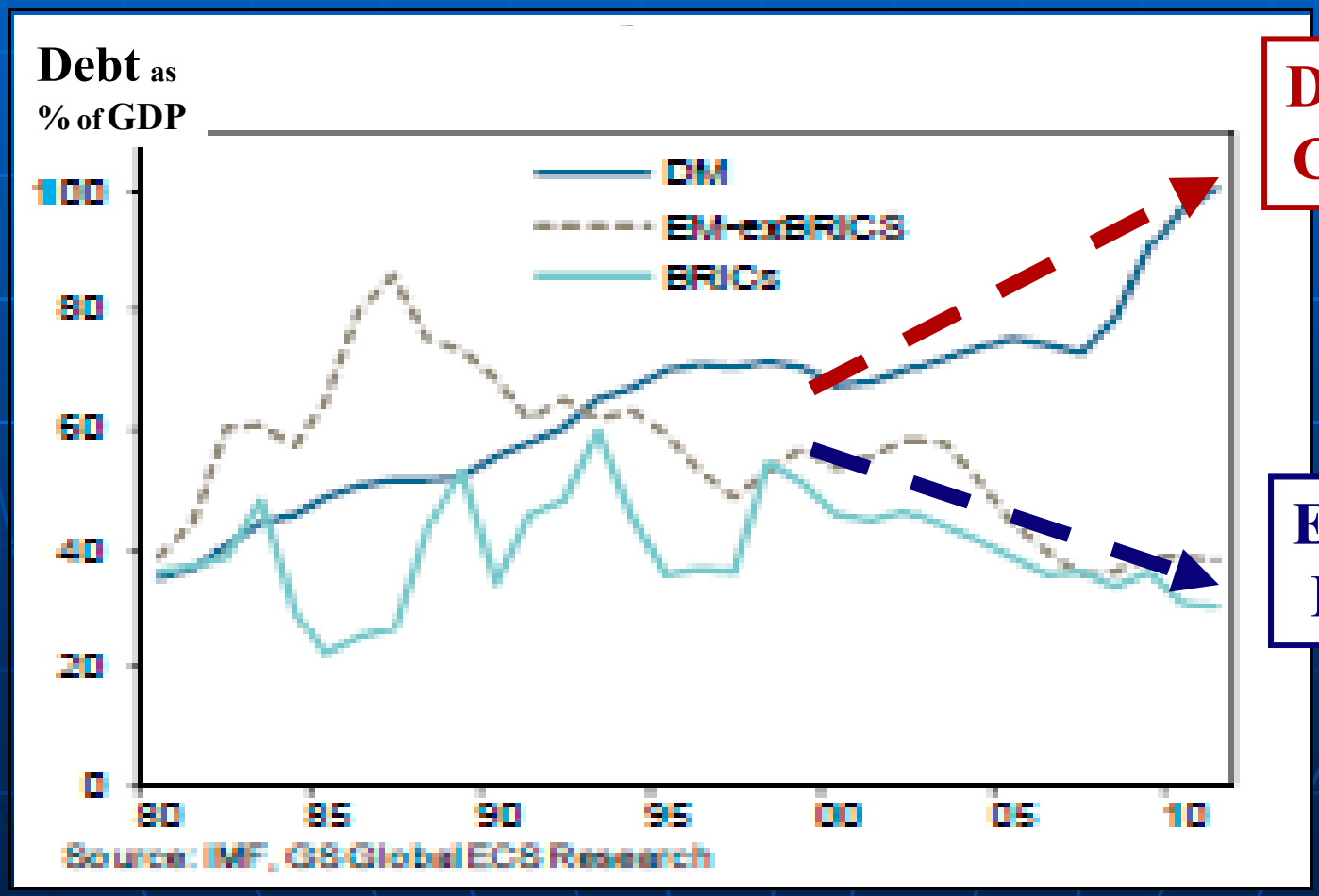
This time *is* different, in some respects.

- There has been a recent historic shift in the relationship between EMs & advanced economies:

- an inter-shuffling of the two decks, and in a few respects even a reversal of roles.
  - Rapid recovery in EMs from 2008-09 recession.
    - Indeed, growth stayed relatively strong throughout, in China, India, Indonesia, & some other Asian developing countries.
    - Hence the "multi-speed" title.
  - Strong fiscal positions.

Historic reversal of fiscal positions

- Debt/GDP of the top 20 rich countries (≈ 80%)
  - is twice that of the top 20 emerging markets;
  - and rising rapidly.



Historic reversal of fiscal positions, continued

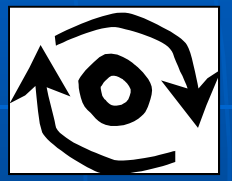
- Inter-shuffling of credit rating agency rankings.
  - Singapore's credit rating is above Belgium's
  - China's rating rose above Japan's in January
  - Taiwan PoC is above Italy
  - Korea is above Portugal
  - Malaysia is above Ireland
  - India is above Greece.

Historic reversal, continued

- High private saving in Emerging Markets as well.
- EM fiscal policies, which always used to be procyclical (destabilizing), have become less so,
  - while US & UK, which used to be countercyclical, have moved the other way over the last decade.
- That helped some EMs moderate 2009 recession
  - China 
  - Chile 

Convergence does not mean the end of the cycle

- Notwithstanding worthwhile financial reforms in Basel or elsewhere, there will always be a boom bust cycle, for countries rich & poor.



- The question is how to manage inflows during the booms and make best use of them, so as
  - (i) to minimize the danger of the busts and
  - (ii) to maximize long-run growth.
- I take that question to be the topic of the conference.

Lessons on how to manage capital inflows

- Decisions by the central bank:
  - 1) Capital controls ?
  - 2) Intervention ?
  - 3) Sterilization ?

- Decisions made by rest of government
  - 1) Fiscal policy
  - 2) Agricultural commodity policy

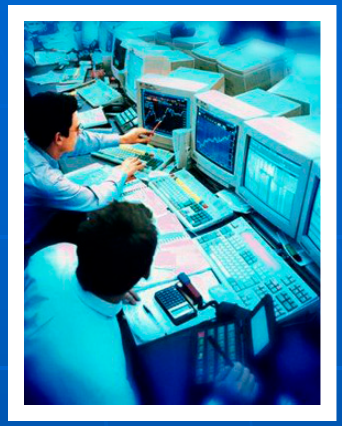
Management of capital inflows

Choices made by central banks

- 1) Capital controls?
  - Appropriately, IMF is more receptive than in 1997.
  - But it is important to be clear about the specifics, rather than speaking indiscriminately about Tobin taxes, Chile-type inflow controls, Malaysia-type outflow controls…
  - I am more sympathetic to controls that
    - fall on inflows rather than outflows, 1/
    - are modest price penalties rather than prohibitions,
    - and are designed to shift the *composition* of inflows, away from short-term, $-denominated, bank loans… 2/

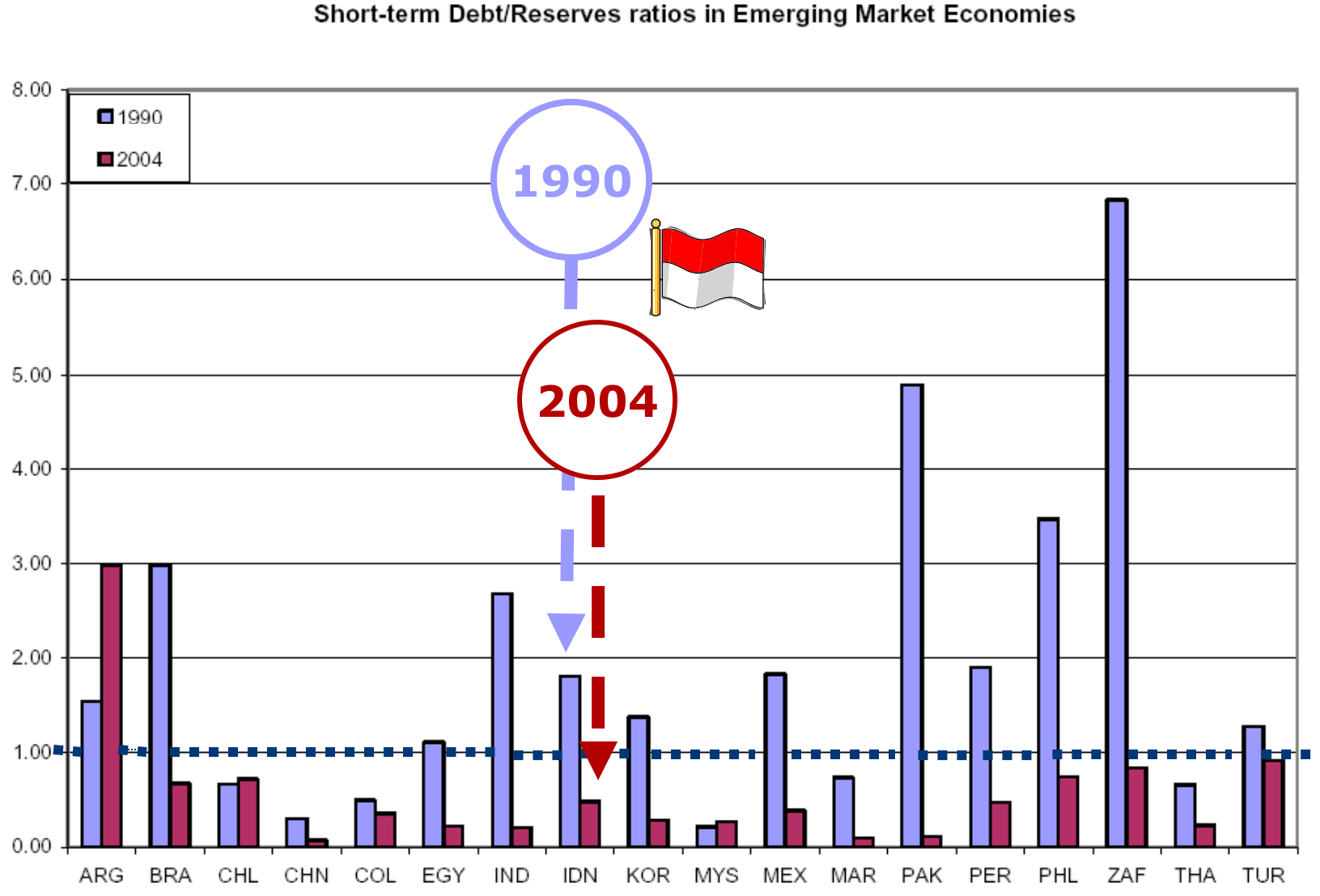
1/ E.g., Reinhart & Smith (1998). But Bartolini & Drazen (1997). Survey: Ostry, Ghosh, Habermeier, Chamon, Qureshi & Reinhardt (2010) .
2/ E.g., Valdes-Prieto & Soto (1996) and Cardenas & Barrera (1997).

Central bank management of capital inflows



- 2) Intervene to buy foreign exchange?
  - If so, how much?
    - Are EMs taking the new inflows as reserves or appreciation?
  - Under an explicit rule?
  - Around what exchange rate target ?
    - not just what level, but also: is the anchor the $, a basket…?
  - Some lessons from recent research on forex regimes

Emerging Market economies entered the 3rd boom with more reserves than short-term debt, obeying the Guidotti rule, unlike the 2nd boom, which they entered with a ratio of short-term debt/reserves > 1

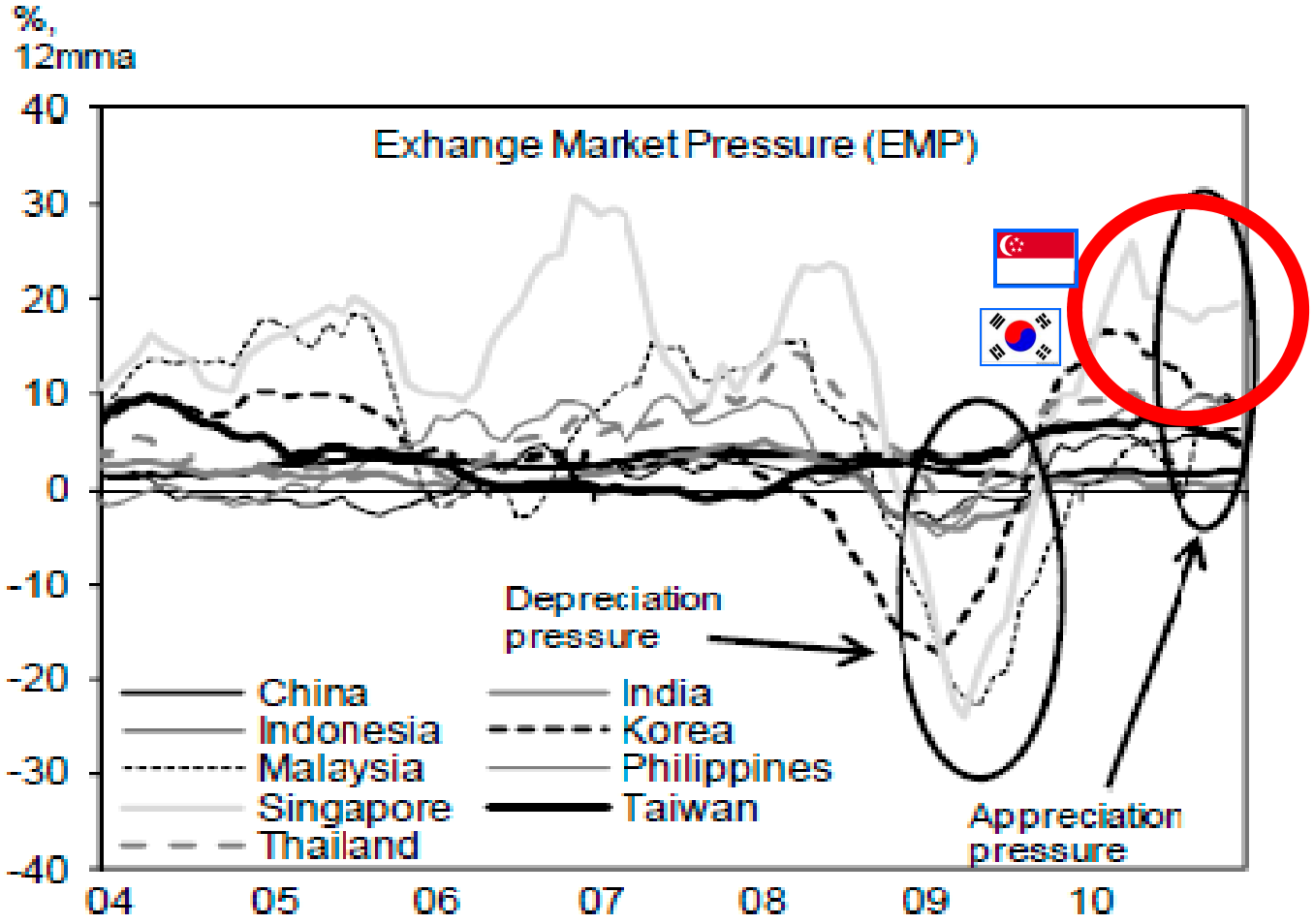


Rodrik (2006)

Sources: Short-term debt statistics are from the Joint BIS-IMF-OECD-World Bank Statistics on External Debt Online Database.

The 4th wave was reflected as an increase in Exchange Market Pressure on all Asian countries in 2010,

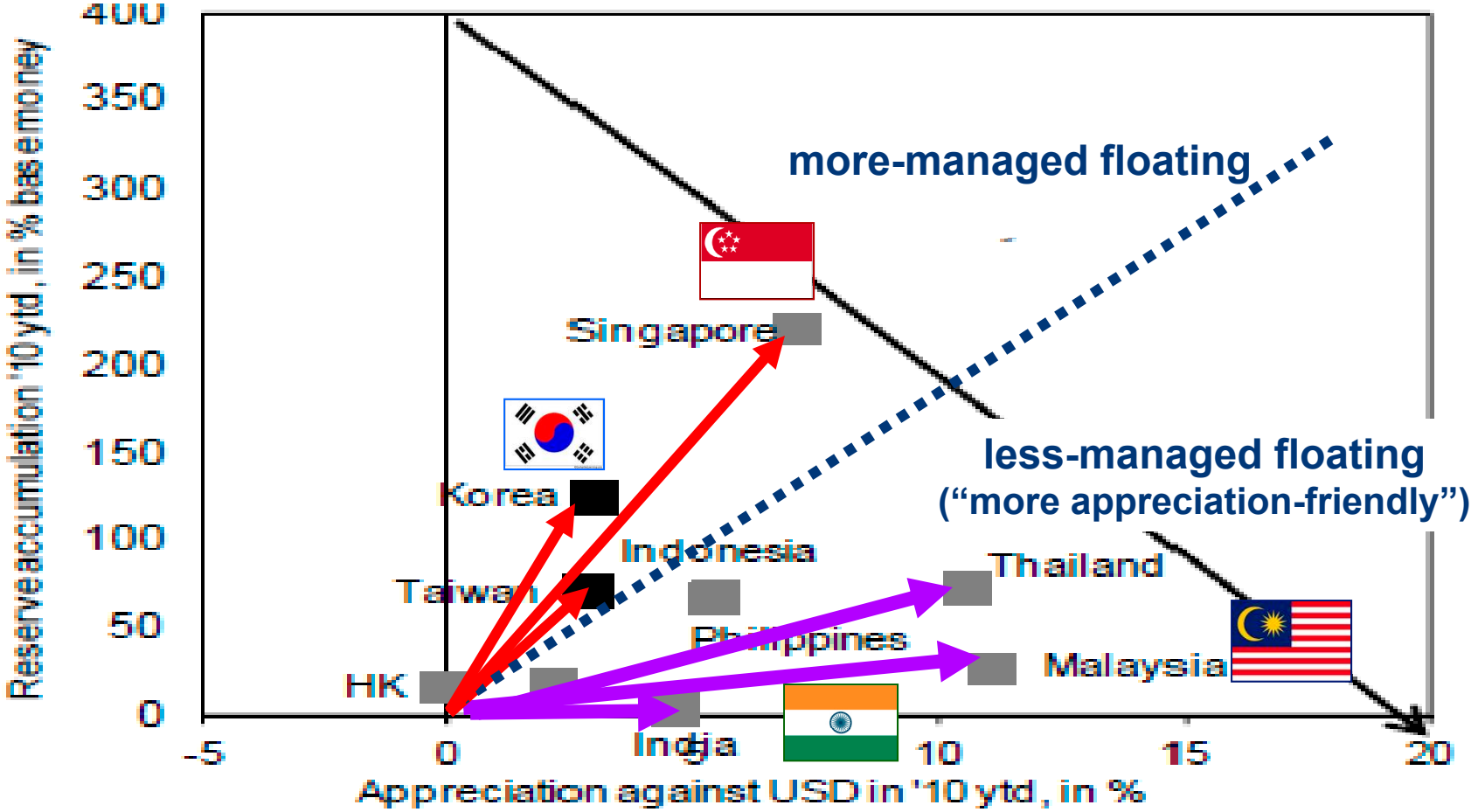
Singapore & Korea the most.



EMP is defined as the sum of currency appreciation plus increase in Reserves (Net Foreign Assets) as a fraction of Monetary Base.

Goldman Sachs
Global Economics Weekly 11/07
Feb.16, 2011

Korea & Singapore have taken the inflows mostly in the form of reserves, while India & Malaysia in 2010 took the inflows in the form of currency appreciation.

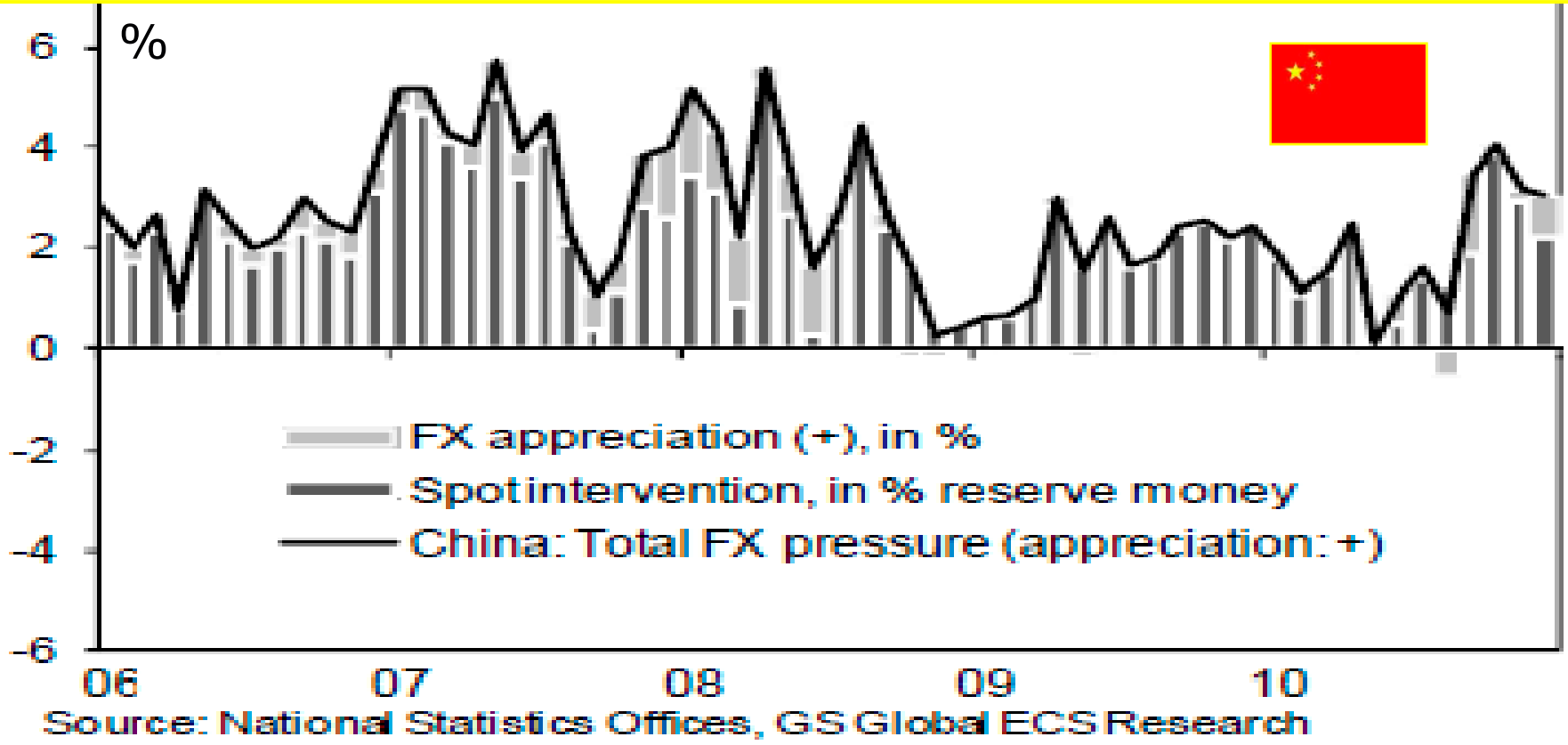


Source: Haver Analytics and Bloomberg

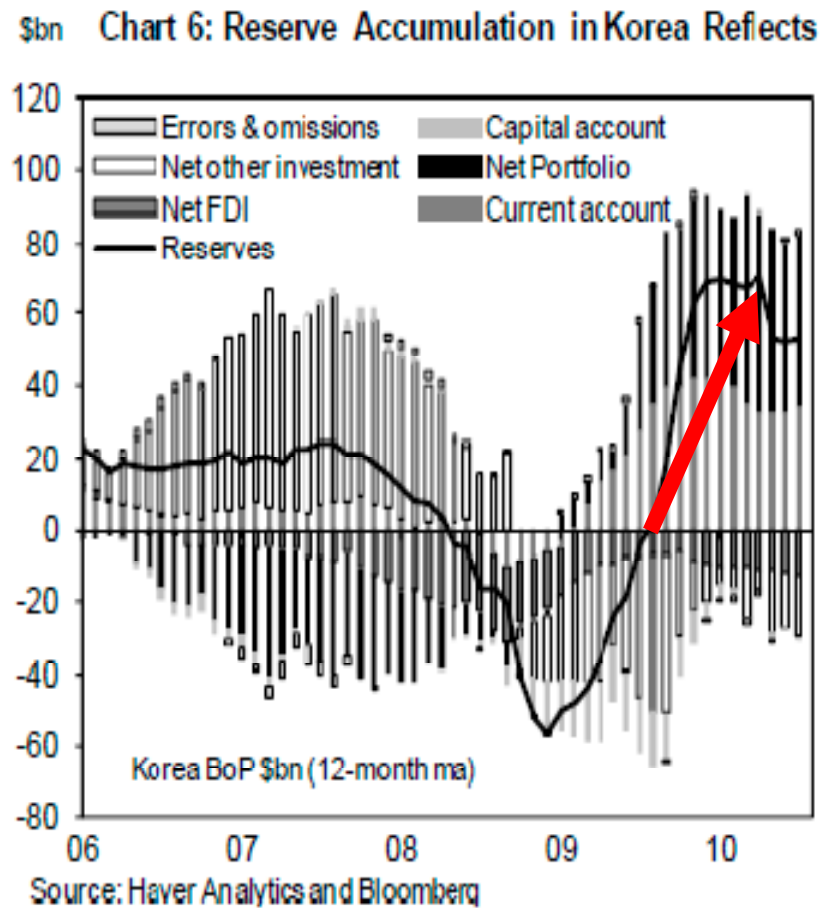
GS Global ECS Research

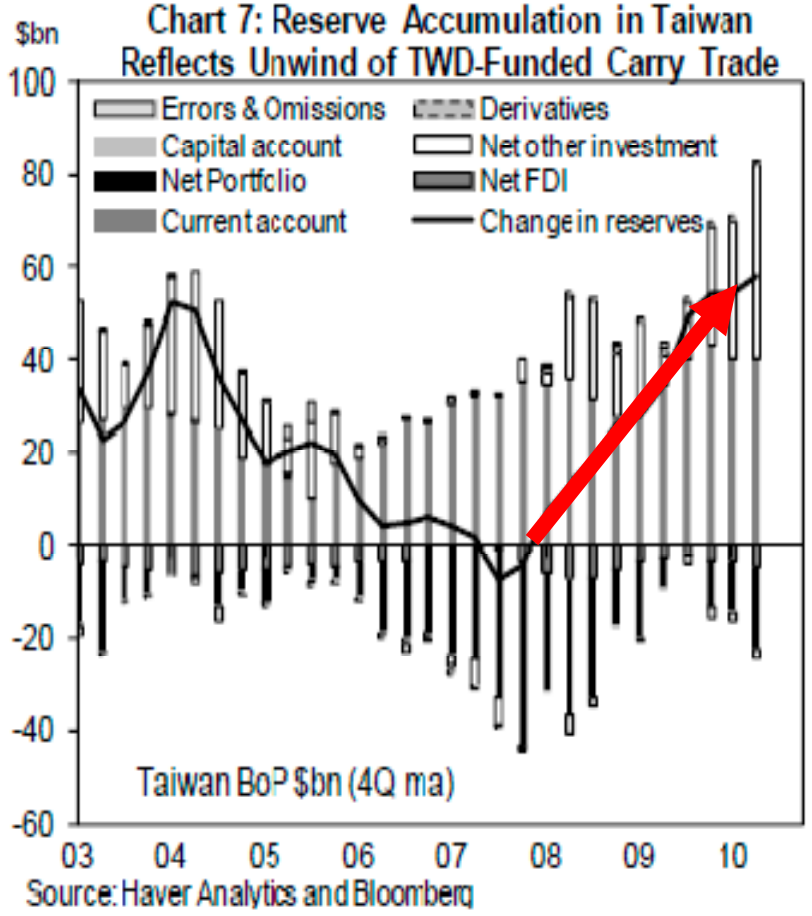
China gets the most attention,

partly because it is so large in trade and
partly because it absorbs most of its Exchange Market Pressure as FX intervention, rather than appreciation

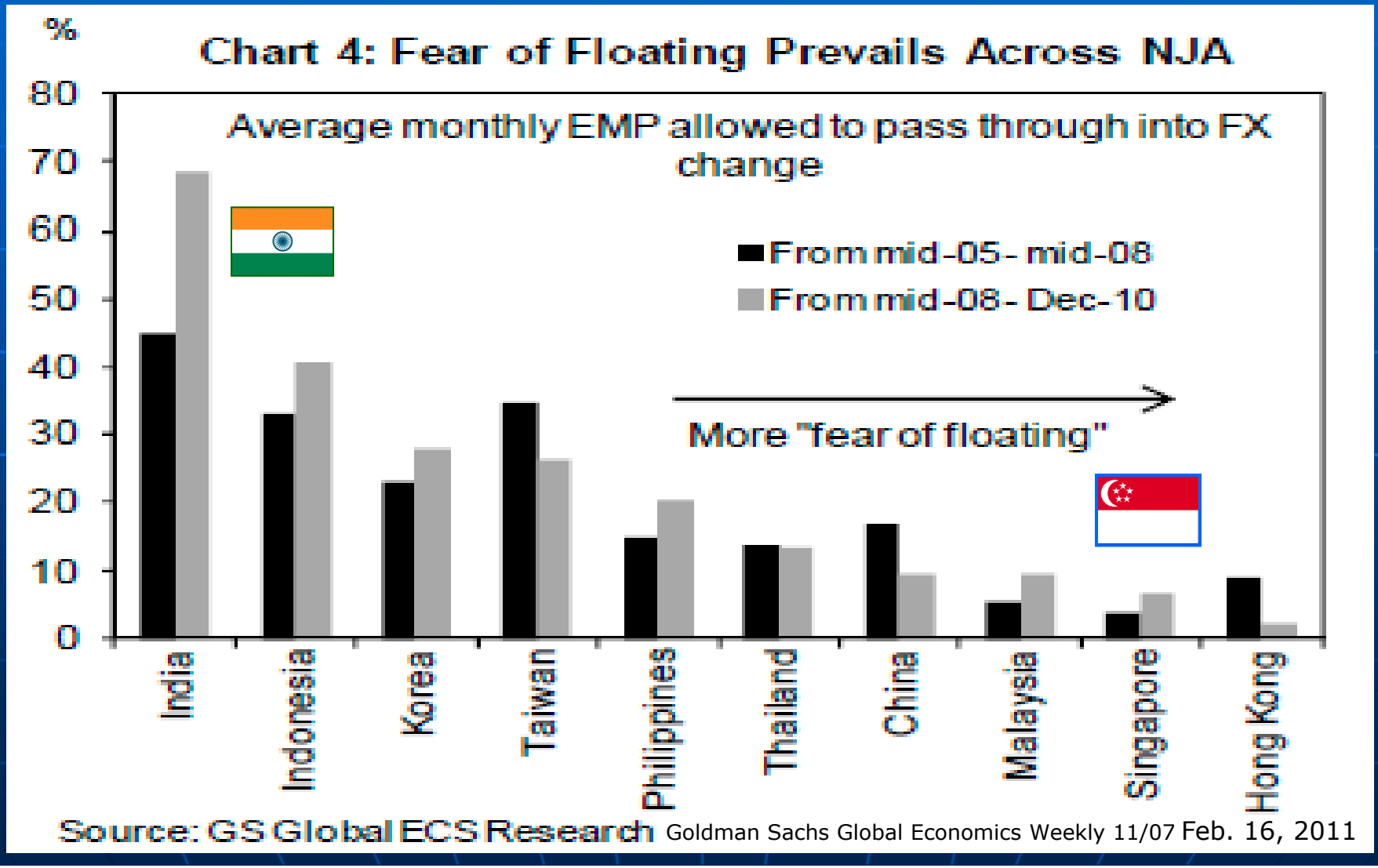


Korea (& Singapore & Taiwan PoC) are also adding heavily to reserves.





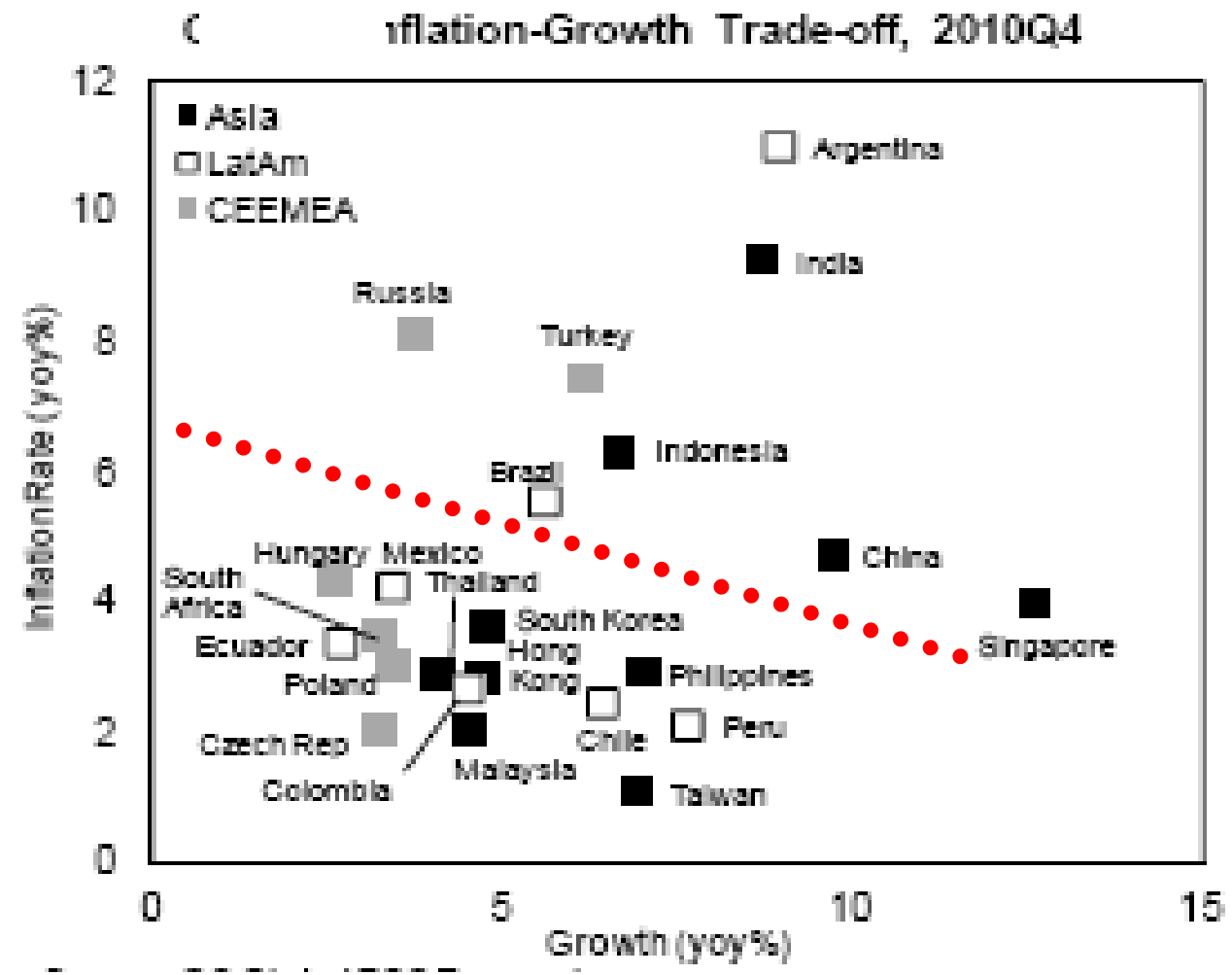
In Asia since 2008, India, followed by Indonesia, have had the greatest tendency to float, given EMP; Hong Kong & Singapore the least, followed by Malaysia & China.



Source: GS Global ECS Research Goldman Sachs Global Economics Weekly 11/07 Feb. 16, 2011

India, Indonesia & China are in danger of overheating

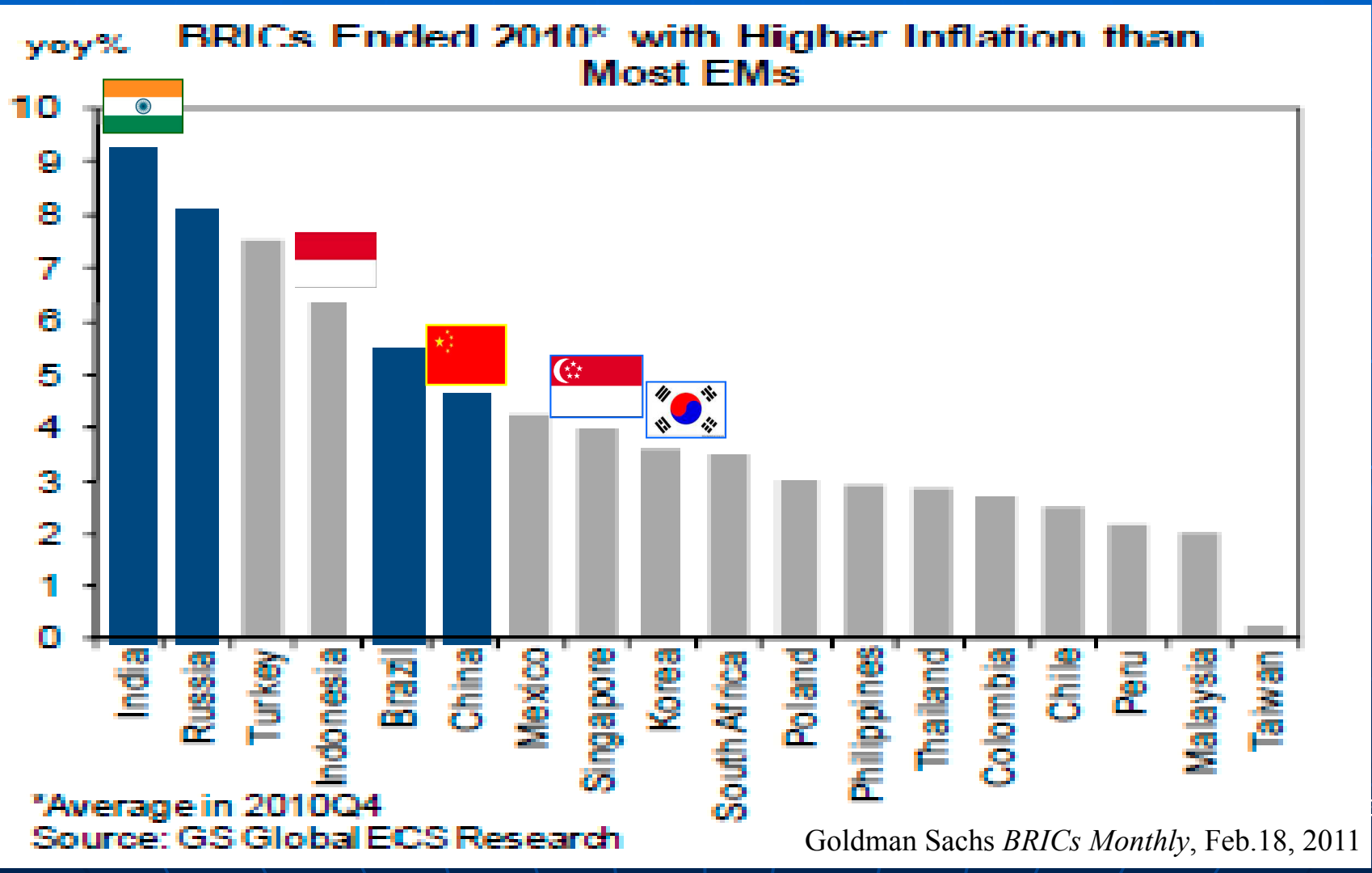
Goldman Sachs Global Economics, Commodities and Strategy Research



=> Indonesia & India have done right to allow appreciation.

GS Global Economics Weekly No. 11/08, Feb. 23, 2011

Inflation has recently crept up in many of the major emerging markets



Goldman Sachs *BRICs Monthly*, Feb.18, 2011

In the advanced economies, by contrast, inflation is still low

% yoy	2008	2010	2011		2012	
			GS	Consensus*	GS	Consensus*
USA	-0.3	1.6	1.7	1.9	1.0	1.9
Japan	-1.4	-0.9	-0.2	-0.1	0.2	0.0
Euroland	0.3	1.6	1.7	2.0	1.8	1.8
UK	2.2	3.3	3.9	3.9	1.7	2.0
Brazil	4.9	5.2	6.4	5.1	6.4	4.7
China	-0.7	3.3	4.3	4.5	3.0	3.6
India	3.6	9.0	6.7	6.8	5.4	6.2
Russia	11.7	6.8	9.0	7.9	6.5	7.3
BRICs	2.5	5.2	5.6	5.5	4.2	4.8
Advanced Economies	0.2	1.6	1.8	2.0	1.5	1.8
World	1.7	3.3	3.6	3.6	3.0	3.3

* Consensus Economics Feb 2011 Source: GS Global ECS Research

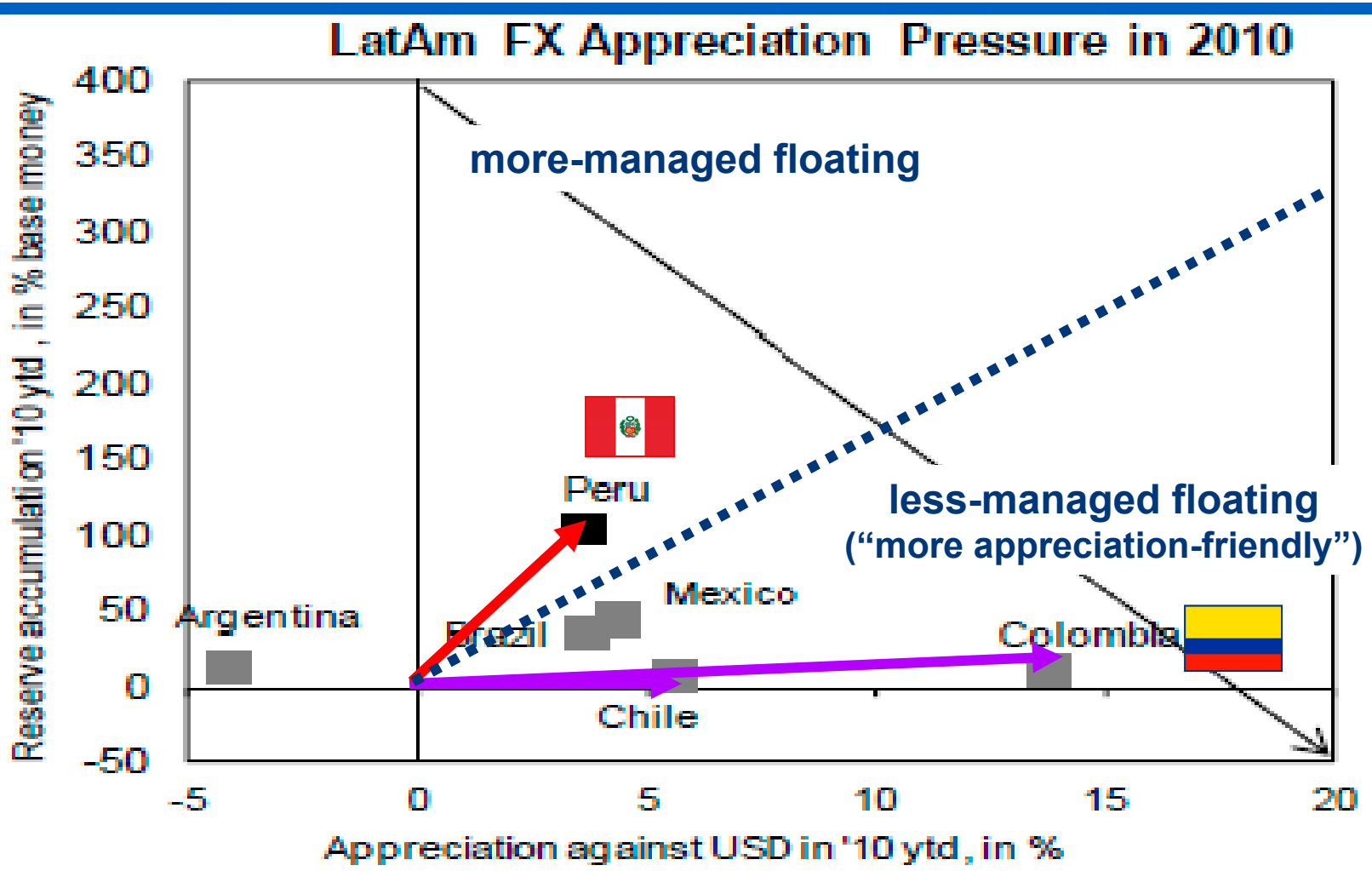
Goldman Sachs *BRICs Monthly*, Feb.18, 2011

Of course internal balance is not the only criterion for judging whether the exchange rate is appropriate

- External balance is equally relevant.
- Appreciation is more appropriate in a country running a strong current account
  - for example due to an export commodity boom.
- One problem with CPI-focused Inflation Targeting:
  - Interpreted literally, it precludes appreciation when the world price of the export commodity rises
  - And requires appreciation when the price of the import commodity rises,
  - Precisely the opposite of accommodating the terms of trade.
  - PPT (Producer Price Targeting) doesn't have this problem.

In Latin America, renewed inflows

are reflected mostly as reserve accumulation in Peru, but as appreciation in Chile & Colombia.

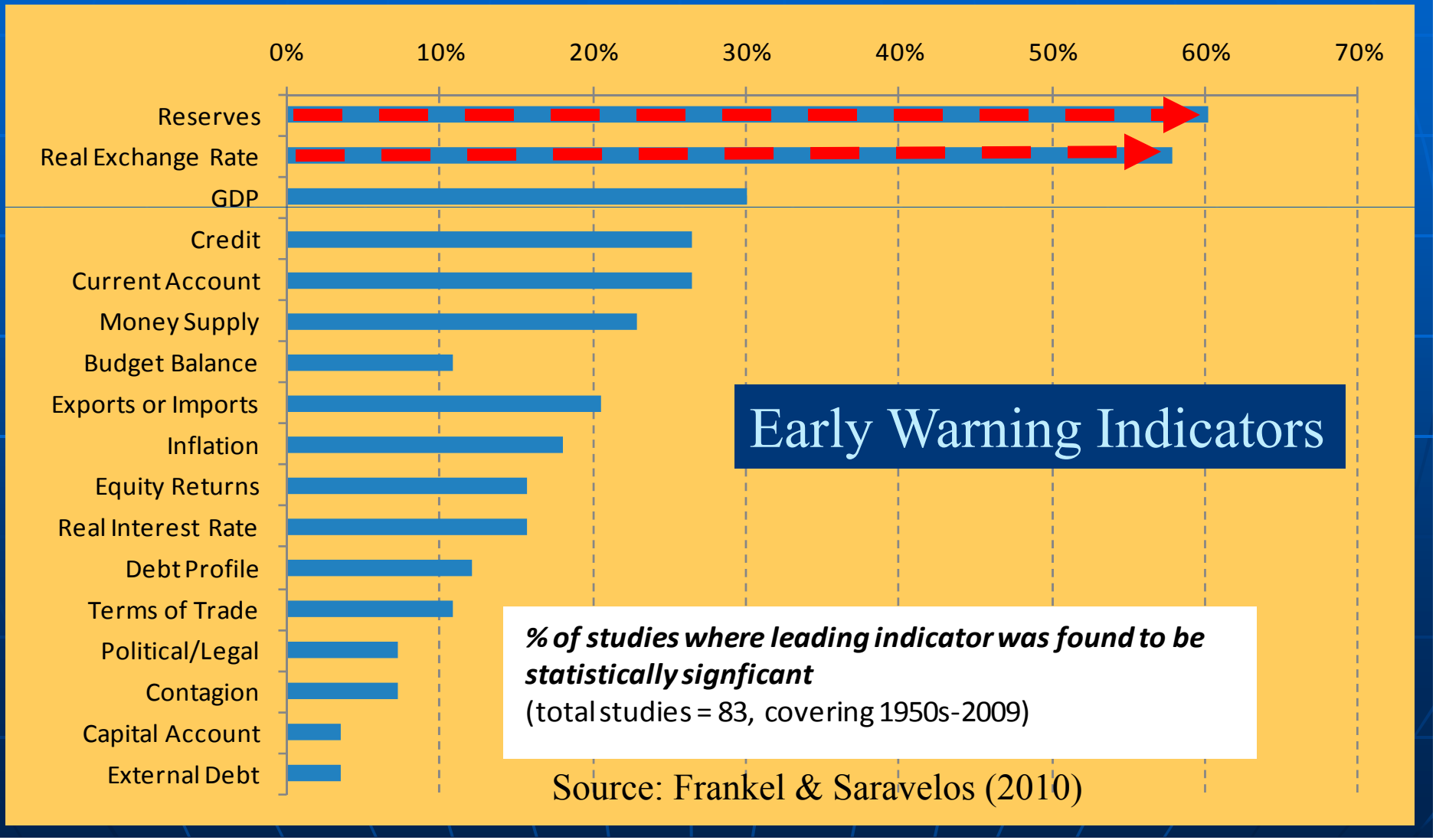


Source: GS Global ECS Research

Some lessons from research on foreign exchange regimes

- Usefulness of reserves
  - 83 studies of Early Warning Indicators, even before 2009,
  - showed foreign exchange reserves as a significant predictor of crises more often than any other early warning indicator.
  - The ratio of reserves to short-term debt is particularly useful.
  - Which countries came through the 2008-09 crisis the best?
    - Reserve measures were again the best predictors.
- Avoiding overvaluation was the 2nd-best indicator.
- Current account/GDP & national saving rates also useful.
- Floaters did better than fixers, esp. on European periphery.

The variables that show up as the strongest predictors of country crises in 83 pre-2009 studies: (i) low reserves and (ii) currency overvaluation



Source: Frankel & Saravelos (2010)

Best and Worst Performing Countries -- F&S (2010), Appendix 4

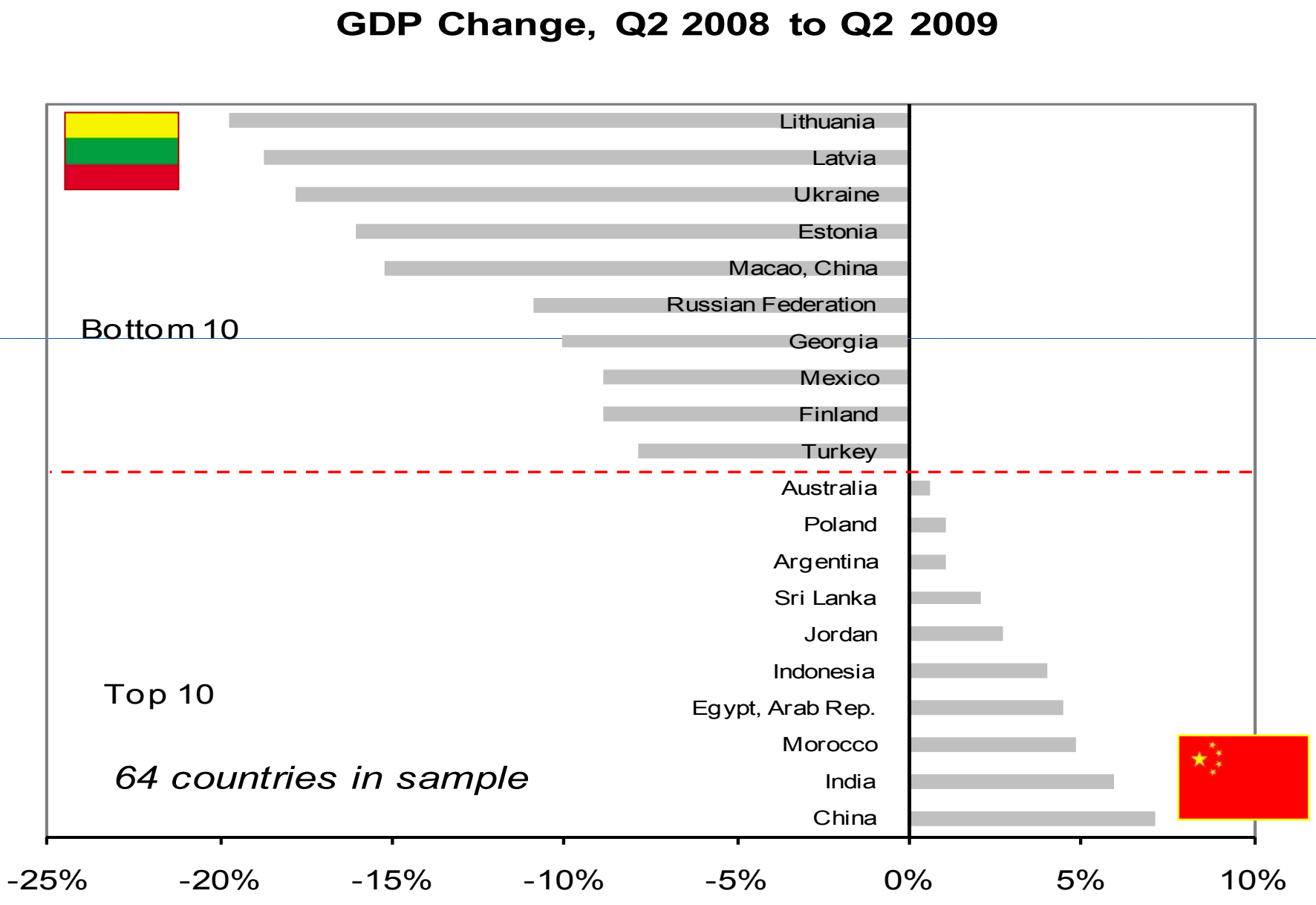


Table Appendix 7

Coefficients of Regressions of Crisis Indicators on Each Independent Variable and GDP per Capita* (t-stat in parentheses)

bolded number indicates statistical signficance at 10% level or lower

F & Saravelos (2010): Multivariate

	Independent Variable	Exchange Market Pressure	Currency % Changes (H208-H109	Recourse to IMF (SBA only)	Equity %Chng (Sep08-Mar09)	Equity % Chng (H208-H109)	Significant and Consistent Sign?^
RESERVES	*Reserves (% GDP)*	**0.164 (3.63)**	**0.087 (2.98)**	**-1.069 (-1.66)**	0.011 (0.12)	0.010 (0.14)	Yes
	Reserves (% external debt)	0.000 (1.06)	0.000 (1.1)	**-0.006 (-2.29)**	**0.000 (1.81)**	**0.000 (2.65)**	Yes
	Reserves (in months of imports)	**0.004 (2.25)**	**0.003 (1.95)**	**-0.119 (-3.01)**	0.006 (1.32)	**0.009 (2.32)**	Yes
	M2 to Reserves	0.000 (0.27)	0.000 (0.76)	-0.044 (-0.91)	0.000 (0.02)	-0.000 (-0.09)	
	Short-term Debt (% of reserves) **ST Debt/Res**	**-0.000 (-1.97)**	**-0.000 (-4.22)**	**0.000 (2.13)**	**-0.001 (-2.89)**	**-0.001 (-3.11)**	Yes
REER	*REER (5-yr % rise)*	**-0.440 (-5.55)**	**-0.210 (-3.19)**	**1.728 (2.15)**	-0.182 (-1.24)	-0.185 (-1.61)	Yes
	REER (Dev. from 10-yr av) **PPP**	**-0.475 (-3.96)**	**-0.230 (-2.47)**	**2.654 (2.56)**	**-0.316 (-1.71)**	**-0.316 (-2.1)**	Yes
GDP	*GDP growth (2007, %)*	-0.000 (-0.2)	0.001 (0.94)	**0.070 (2.58)**	-0.001 (-0.1)	-0.007 (-0.71)	
	GDP Growth (last 5 yrs)	-0.003 (-0.81)	0.000 (0.26)	**0.084 (2.4)**	-0.003 (-0.26)	-0.014 (-1.15)	
	GDP Growth (last 10 yrs)	0.000 (0.14)	0.001 (0.43)	**0.064 (1.66)**	-0.012 (-0.67)	-0.020 (-1.12)	
CREDIT	*Change in Credit (5-yr rise, % GDP)*	-0.021 (-0.36)	-0.035 (-0.98)	0.552 (1.02)	**-0.274 (-2.97)**	**-0.248 (-4.13)**	Yes
	Change in Credit (10-yr rise, % GDP)	-0.017 (-0.93)	-0.011 (-1.05)	0.210 (1.03)	-0.089 (-1.65)	**-0.089 (-2.35)**	
	Credit Depth of Information Index (higher=more)	-0.008 (-1.06)	0.000 (0.05)	**0.224 (2.4)**	-0.006 (-0.37)	-0.018 (-1.33)	
	Bank liquid reserves to bank assets ratio (%)	**0.000 (3.84)**	0.000 (0.5)	**-0.000 (-11.44)**	-0.002 (-0.54)	-0.002 (-0.79)	Yes
CURRENT ACCOUNT	*Current Account (% GDP)* **CA/GDP**	0.001 (1.48)	**0.002 (2.7)**	**-0.023 (-2.09)**	**0.009 (3.84)**	**0.007 (3.95)**	Yes
	Current Account, 5-yr Average (% GDP)	0.000 (0.48)	**0.001 (1.82)**	**-0.025 (-1.72)**	**0.007 (2.4)**	**0.006 (2.74)**	Yes
	Current Account, 10-yr Average (% GDP)	0.000 (0.14)	0.002 (1.39)	**-0.035 (-2.11)**	**0.008 (2.21)**	**0.007 (2.44)**	Yes
	Net National Savings (% GNI)	0.002 (1.6)	**0.001 (2.33)**	-0.013 (-1.22)	**0.006 (2.92)**	**0.004 (2.28)**	Yes
	Gross National Savings (% GDP) **NS/GDP**	**0.003 (2.01)**	**0.001 (2.53)**	-0.015 (-1.36)	**0.008 (3.42)**	**0.006 (3.03)**	Yes

New lesson regarding exchange rate regimes

- Old conventional wisdom: The choice was between
  - fixing (changes in reserves; not in exchange rate) vs.
  - floating (changes in exchange rate; no reserves).
- Now it appears that:
  - Intermediate regimes are indeed viable.
  - Holding reserves *and* floating are *both* useful.

Central bank management of capital inflows

- Sterilize increase in reserves?
  - If so, how much?
  - Within balance sheet of central bank,
    - or via commercial banks?
  - For how long?

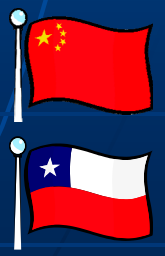
Two recommendations for a typical intermediate country

- (1) Raise banks' reserve requirements
  - especially against foreign-currency deposits. 1/
  - It's three policies in one:
    - Sterilization
    - Capital control (but without the dirigiste taint)
    - Prudential regulation.
- (2) Sequence FX management of a capital inflow:
  - (i) First, intervene & sterilize reserve inflow.
  - (ii) After a year or two, abandon attempt to sterilize.
  - (iii) If inflow persists, allow appreciation.

1/ Ostry, Ghosh, Chamon & Qureshi (2011)

Choices made by rest of government

- Countercyclical fiscal policy:
- A boom is a time to run a surplus.
  - Don't get seduced into running large deficits by abundance of financing or visions of unending growth.
- Then when there is a downturn, you can run a deficit.
- Some learned how to do it over the last decade:
  - China
  - Chile, where fiscal institutions deliver countercyclicality
    - Rule: Govt. must set target for structurally adjusted surplus
    - Independent expert panels judge cyclical vs. structural.



Choices made by rest of government, continued

- If inflation shows up disproportionately in prices of food, fuel & other basic commodities, do not respond via price controls, rationing, export controls…
  - For one thing, they worsen commodity volatility in the long run.
  - True, raising administered food prices can be politically fatal. E.g., North Africa.
  - But people can riot as well in response to queuing for food at the controlled price and then discovering supplies have run out.

  - In the longer run, a country that trains its people to think that the government determines agricultural prices, rather than international markets, will get into trouble.
- There are better policies.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Coping with Asia's Large Capital Inflows

in a Multi-speed Global Economy

APPENDICES

Jeffrey Frankel

Keynote address
Bank of Indonesia and IMF Joint Conference
Bali, Indonesia, March 11, 2011

BANK INDONESIA
BANK SENTRAL REPUBLIK INDONESIA

INTERNATIONAL MONETARY FUND

- Appendix I: Why the response sequence

  (i) sterilize,

  (ii) intervene unsterilized,

  (iii) appreciate ?

- Appendix II:

  Why appreciation is in China's own interest.

- Appendix III: In the European periphery, floaters did better after 2008 than fixers.

Appendix I:
Proposed foreign exchange management sequence

- (i) During the early years of the inflow, intervene in line with inherited exchange rate regime,
  - building up reserves,
  - attempting some sterilization to slow money growth & inflation
  - (and perhaps controls on short-term inflow),
  - especially if it might be temporary (speculative bubble or low foreign interest rates)

Why sequence foreign exchange management? continued

- (ii) After a year or two, sterilization usually gets harder.
  - High interest rate creates problems.
    - E.g. quasi-fiscal deficit.
  - And it just prolongs inflows.
- So halt sterilization.
  Allow money supply to grow, especially if appropriate to accommodate strong supply-side growth in economy.

Why sequence foreign exchange management? continued

- (iii) After several years, if the capital is still coming in -- apparently attracted by genuine strong growth and high return on capital -- halt intervention,
  - assuming that by then the reserve level is adequate.
  - Appreciation is the best way to alleviate overheating, inflation, & asset bubbles.
  - It also accommodates supply side progress
    - -- productivity, terms of trade --
  - and allows workers to share in gains
    - via higher purchasing power.

Appendix II: Should China appreciate?

- Countries should have the right to fix their exchange rate if they want to.
- True, the IMF Articles of Agreement and the US Omnibus Trade Act of 1988 call for action in the event that a country is "unfairly manipulating its currency".
- But
  - Few countries have been forced to appreciate.
  - Pressure on surplus countries to appreciate will inevitably be less than pressure on deficit countries to depreciate.
  - I support ending the language of "manipulation."
- China should do what is in its own long-term interest.

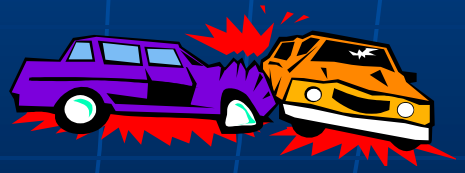
Five reasons why China should let the RMB appreciate, in its own interest

1. Overheating of economy

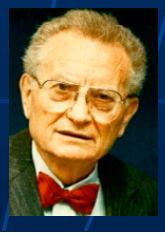
2. Reserves are excessive.
   - It gets harder to sterilize the inflow over time.

3. Attaining internal and external balance.
   - To attain both, need 2 policy instruments.
   - In a large country like China, expenditure-switching policy should be the exchange rate.

4. Avoiding future crashes.



5. RMB undervalued, judged by Balassa-Samuelson relationship.



1. Overheating of economy:

- Bottlenecks. Pace of economic growth is outrunning:
  - raw material supplies, and
  - labor supply in coastal provinces
  - Also:
    - physical infrastructure
    - environmental capacity
    - level of sophistication of financial system.

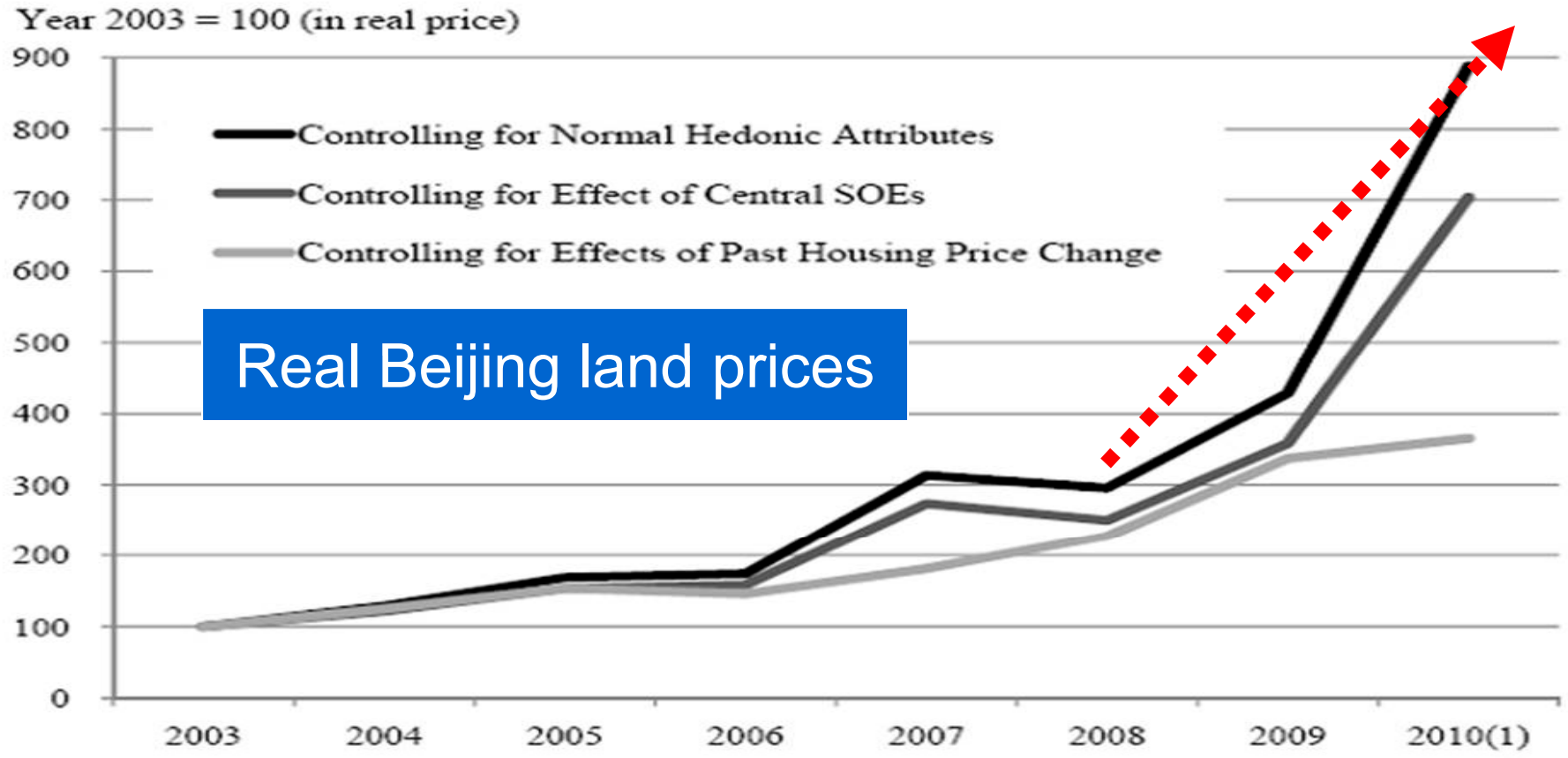
- Asset bubbles.
  - Shanghai stock market bubble in 2007.
- Inflation 6-7% in 2007

  => price controls

  ⇒ shortages & social unrest.
- All of the above was suspended in late 2008,
  - due to global recession.
  - But it is back again now; skyrocketing real estate prices.

Overheating shows up as rapid rise of land prices

Figure 6: Constant Quality Residential Land Real Price Index for Beijing, 2003-2010(1)



Source: Wu, Gyourko, and Deng (2010).

Attempts at "sterilization," to insulate domestic economy from the inflows

- Sterilization is defined as offsetting of international reserve inflows, so as to prevent them from showing up domestically as excessive money growth & inflation.
- For awhile PBoC successfully sterilized…
  - until 2007-08.
  - The usual limitations finally showed up:
    - Prolongation of capital inflows <= self-equilibrating mechanism shut off.
    - Quasi-fiscal deficit: gap between domestic interest rates & US T bill rate
    - Failure to sterilize: money supply rising faster than income
    - Rising inflation (admittedly due not only to rising money supply)

2. Foreign Exchange Reserves

- Excessive:
  - Though a useful shield against currency crises,
  - China has enough reserves: almost $3 trillion by Feb.2011;
  - & US treasury securities do not pay high returns.
- Harder to sterilize the inflow over time.

The Balance of Payments
≡ rate of change of foreign exchange reserves (largely $),

rose rapidly in China over past decade,
due to all 3 components:
trade balance, Foreign Direct Investment, and portfolio inflows

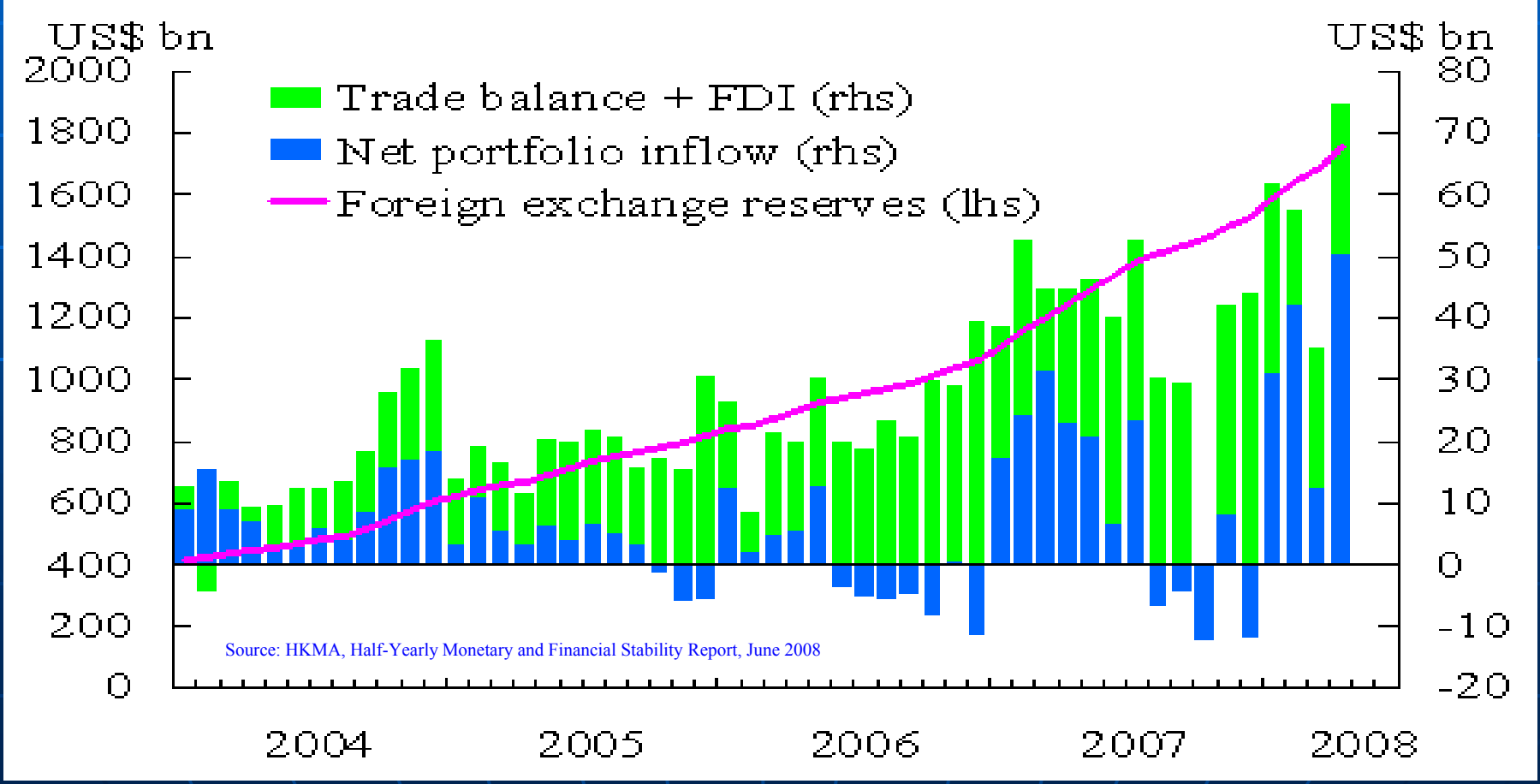
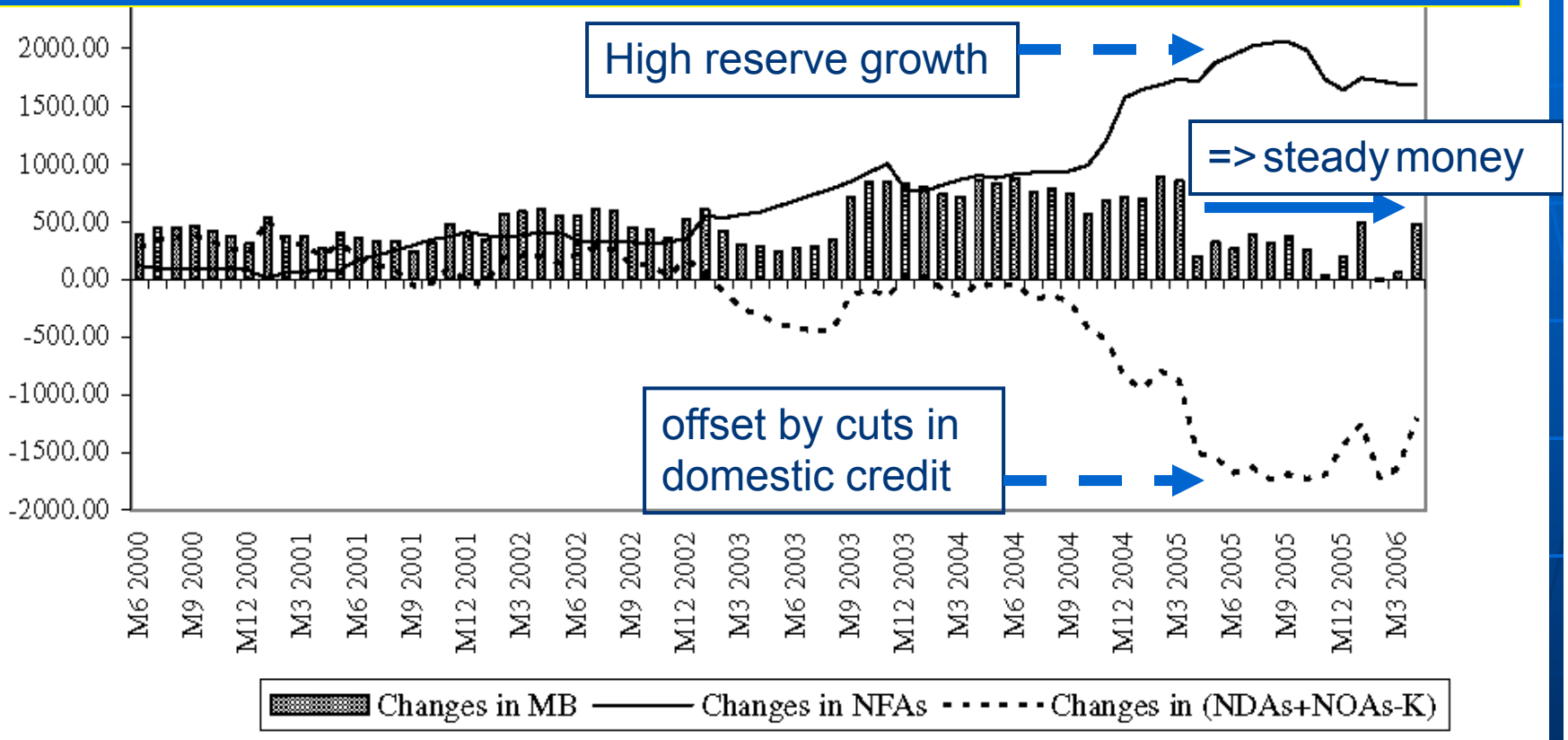


Figure 4: Monthly Annual Change in NFAs, NDAs, and Reserve Money in China, 2000: M6 – 2006: M4

Attempts to sterilize reserve inflow:



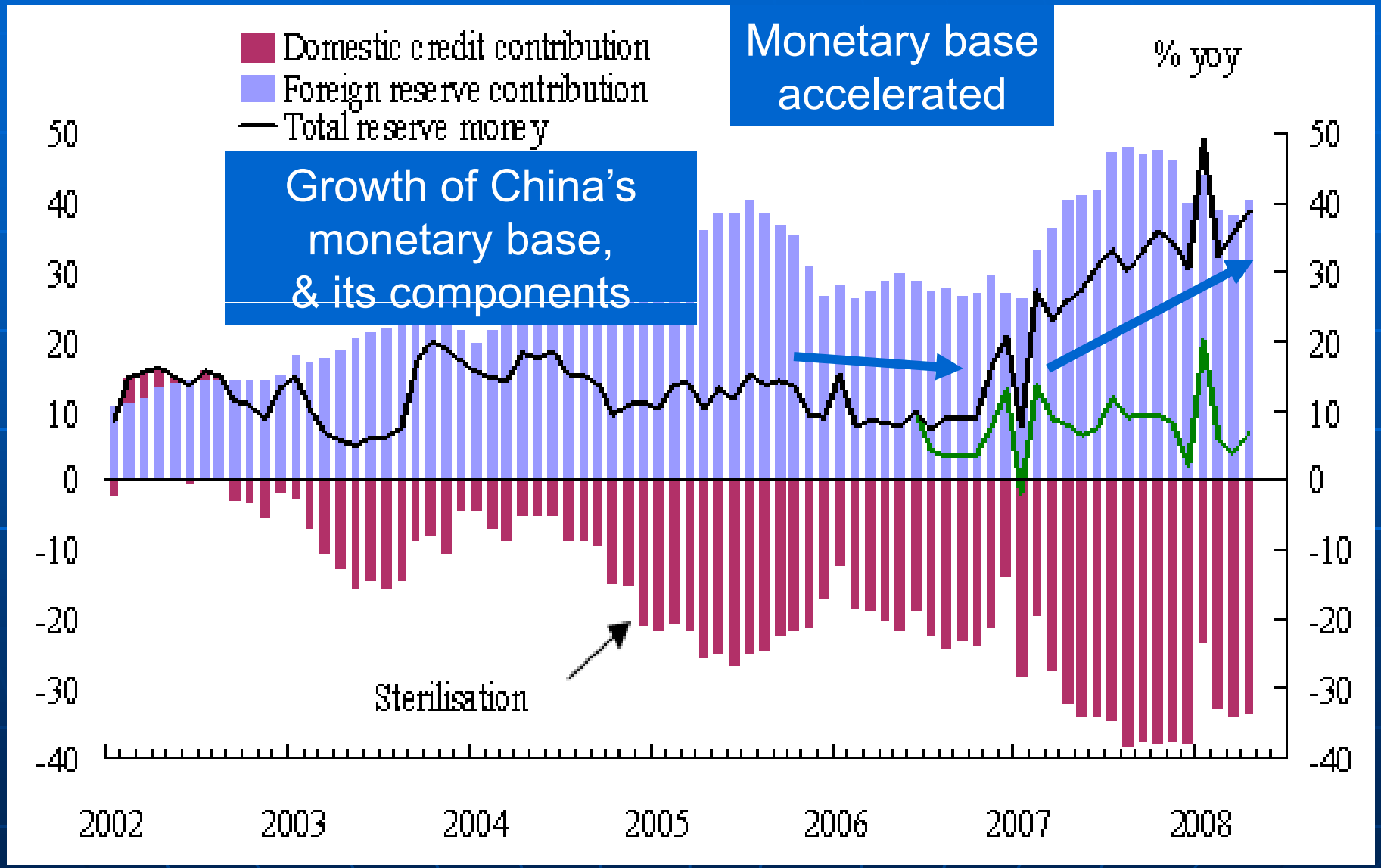
were remarkably successful in 2005-06.

Source: Alice Ouyang, Ramkishen Rajan, and Thomas Willett, "China as a Reserve Sink: The Evidence from Offset and Sterilization Coefficients," Claremont Graduate University, February 2007.

In 2007-08 China began to have more trouble sterilizing the reserve inflow

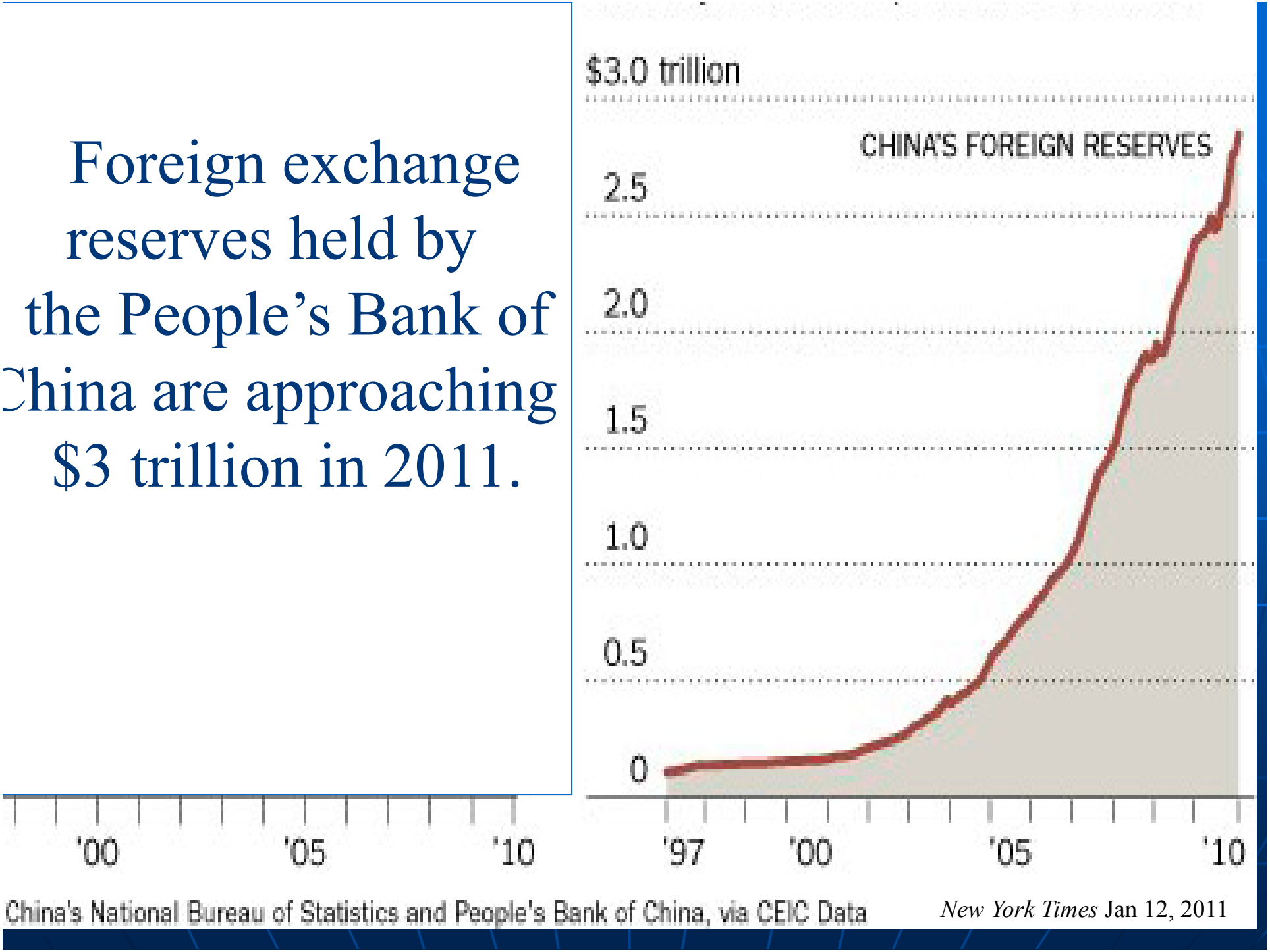
- PBoC began to pay higher interest rate domestically, & receive lower interest rate on US T bills
  => quasi-fiscal deficit.
- Inflation became a serious problem.
  - True, global increases in food & energy prices were much of the explanation.
  - But
    - China's overly rapid growth itself contributed.
    - Appreciation is a good way to put immediate downward pressure on local prices of farm & energy commodities.
    - Price controls are inefficient and ultimately ineffective.

Sterilization faltered in 2007 & 2008

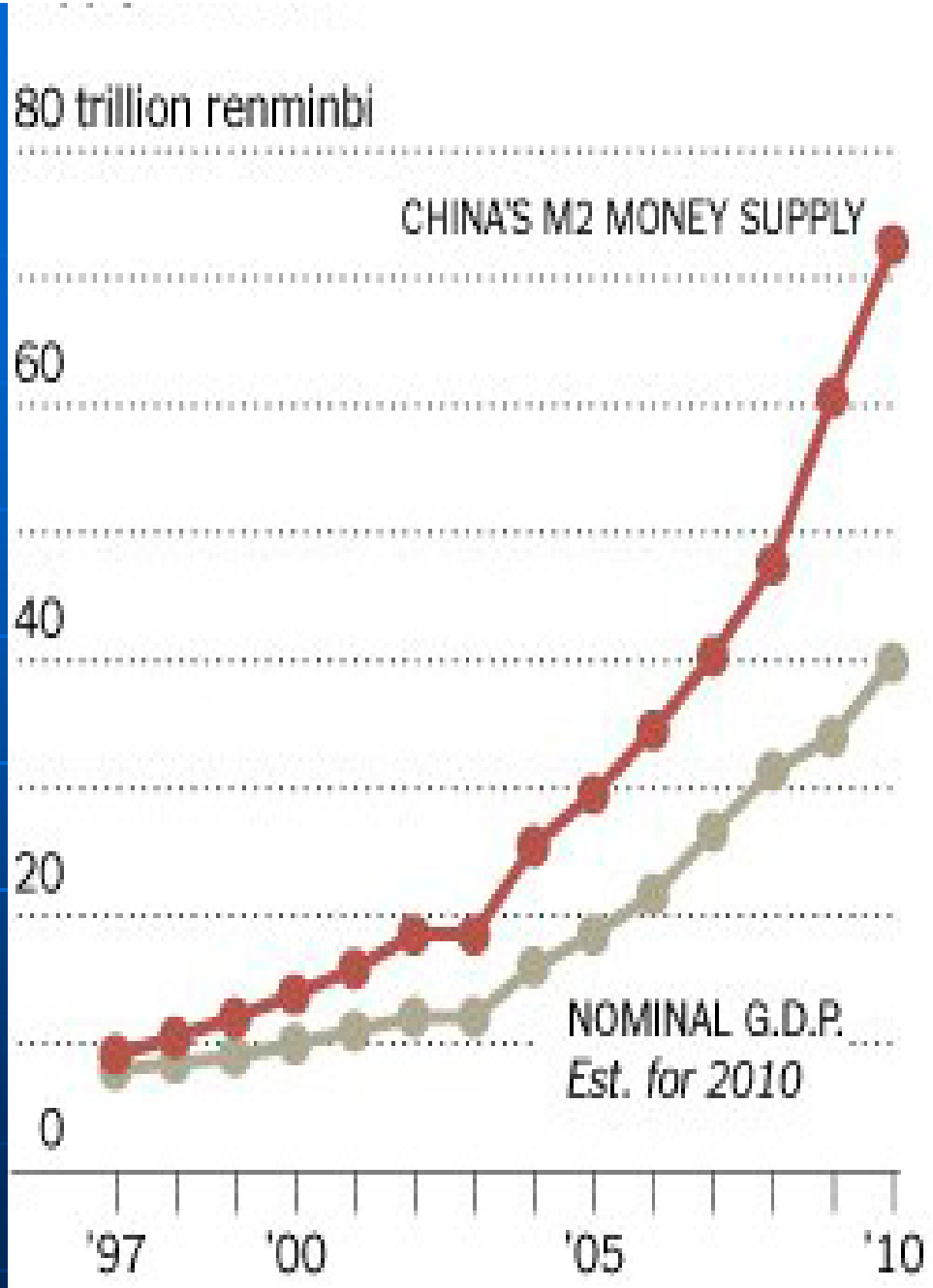


Source: HKMA, Half-Yearly Monetary and Financial Stability Report, June 2008

Foreign exchange reserves held by the People's Bank of China are approaching $3 trillion in 2011.



New York Times Jan 12, 2011



Sources: China's National Bureau of Statistics and People's Bank of China, via CEIC Data *New York Times* Jan 12, 2011

The Chinese money supply has almost doubled in the last 3 years, contributing t rapid growth in aggregate demand, as reflected in nominal GDP

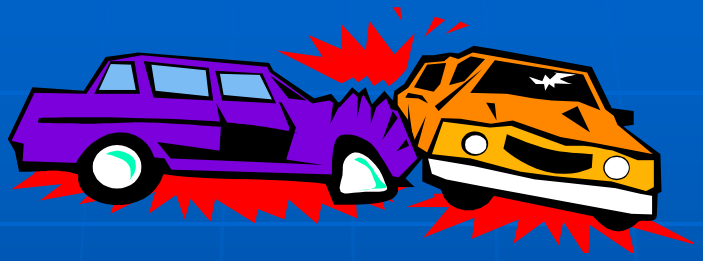
No wonder inflation is rising again.

3. Need a flexible exchange rate to attain internal & external balance

- Internal balance ≡
  demand neither too low (recession) nor too high (overheating).
- External balance ≡ appropriate balance of payments.

- General principle: to attain both policy targets,
  a country needs to use 2 policy instruments.
- For a country as large as China, one of those policy instruments should be the exchange rate.
- To reduce BoP surplus without causing higher unemployment,
  China needs both
  - currency appreciation, *and*
  - expansion of domestic demand
    - gradually replacing foreign demand,
    - developing neglected sectors:
      health, education, environment, housing, finance, & services.

4. Avoiding future crashes

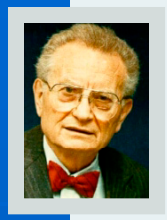


Experience of other emerging markets suggests it is better to exit from a peg in good times, when the BoP is strong, than to wait until the currency is under attack.

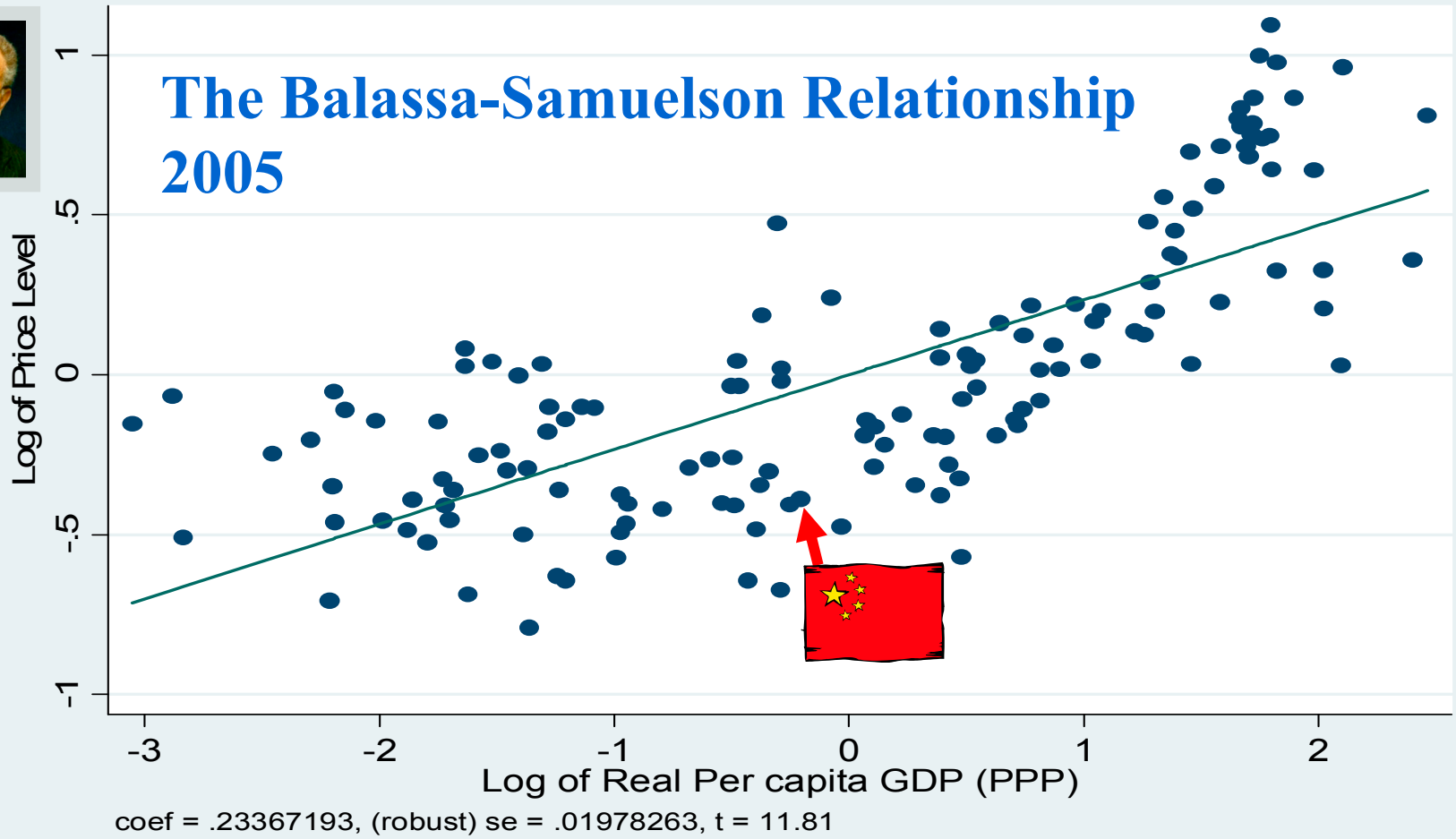
Introducing some flexibility now, even though not ready for free floating.

5. Longer-run perspective: Balassa-Samuelson relationship

- Prices of goods & services in China are low
  - compared at the nominal exchange rate.
  - Of course they are a fraction of those in the U.S.: < ¼ .
  - This is to be expected,
    explained by the Balassa-Samuelson effect
    - which says that low-income countries have lower price levels.
    - As countries' real income grows, their currencies experience real appreciation: approx. .3% for every 1 % in income per capita.
  - But China is one of those countries that is cheap or undervalued even taking into account Balassa-Samuelson.



The Balassa-Samuelson Relationship 2005

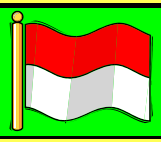


Source: Arvind Subramanian, April 2010, "New PPP-Based Estimates of Renminbi Undervaluation and Policy Implications," PB10-08, Peterson Institute for International Economics

Undervaluation of RMB in the regression estimated above = 26%.
Estimated undervaluation averaging across four such estimates = 31%.
Compare to Frankel (2005) estimate for 2000 = 36%.

Appendix III:

Poland, the only continental EU member with a floating exchange rate, was also the only one to escape negative growth in the global recession of 2009

% change in GDP	2006	2007	2008	2009	2010	Exchange Rate
Poland 	6.2	6.8	5.1	1.7	3.5f	Floating
Lithuania 	7.8	9.8	2.9	-14.7	-0.6f	Fixed
Latvia 	12.2	10.0	-4.2	-18.0	-3.5f	Fixed
Estonia 	10.6	6.9	-5.1	-13.9	0.9f	Fixed
Slovakia 	8.5	10.6	6.2	-4.7	2.7f	Euro

Source: Cezary Wójcik, 2010

The Polish exchange rate increased by 35%.

Depreciation boosted net exports; contribution to GDP growth > 100%