

The crisis: A survey

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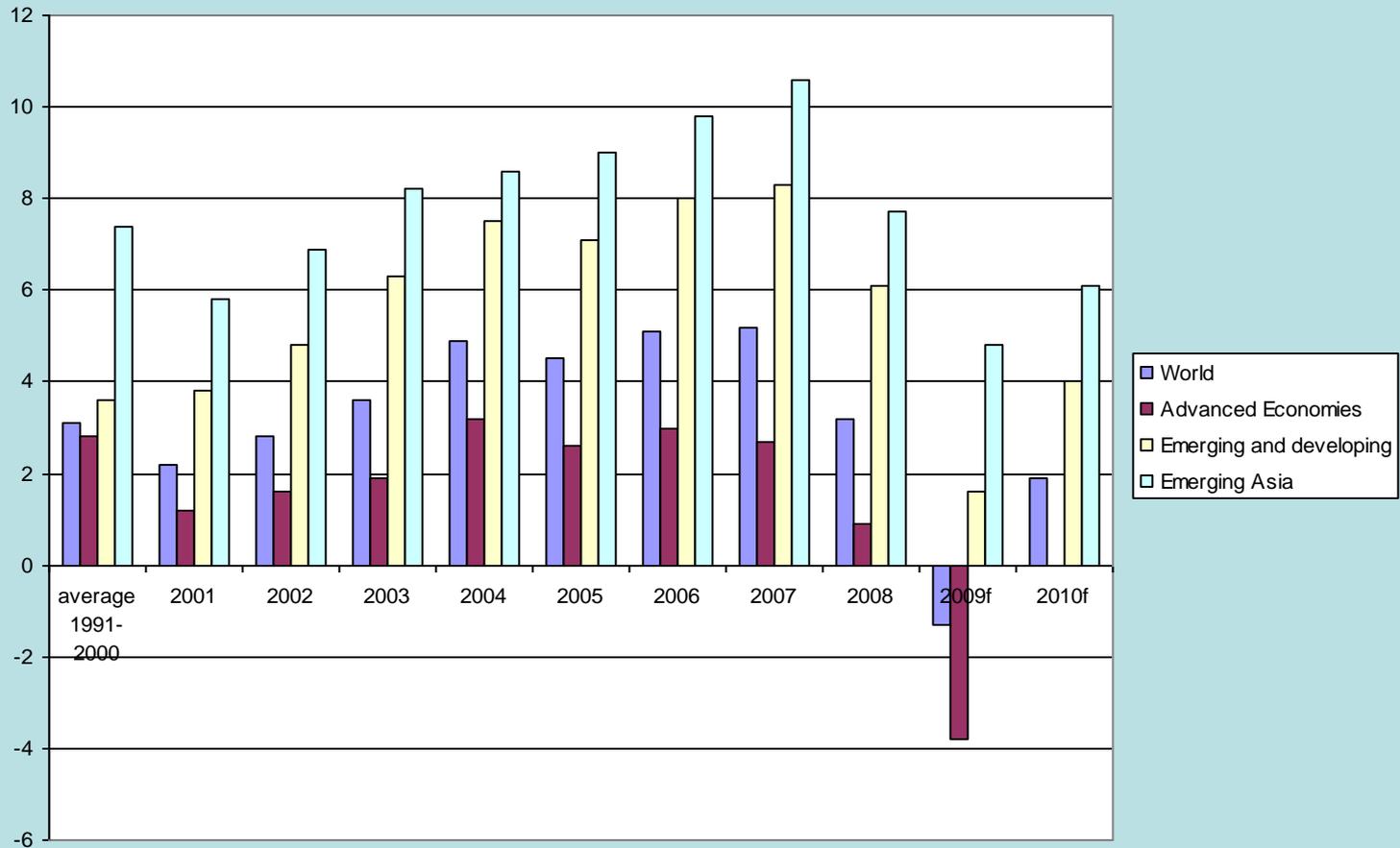
ISTISEO

22 June 2009

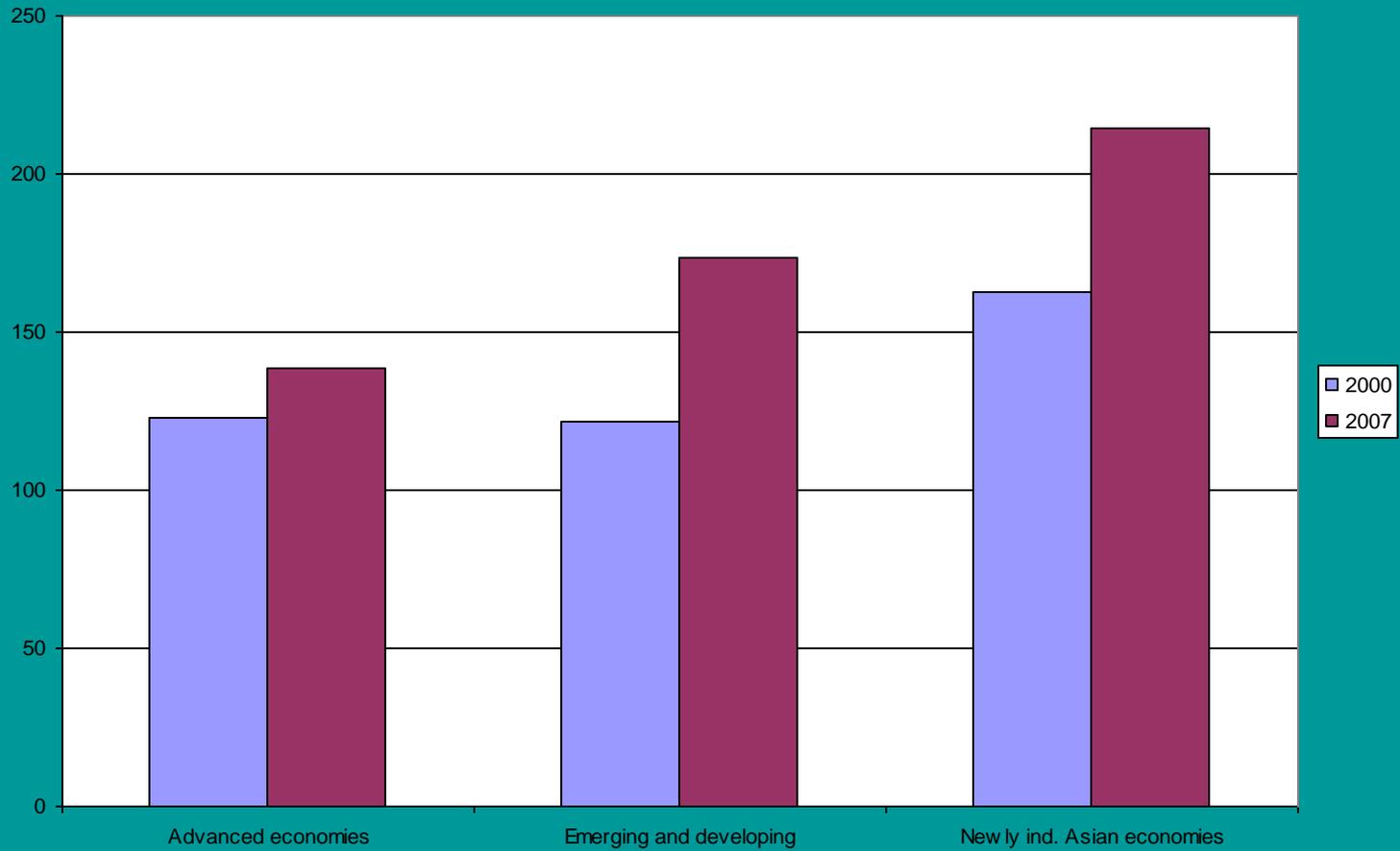
1 - Introduction: The great recession

- June 2007:
The blissful era of the “great moderation” suddenly ends up in an unprecedented financial crisis and, after a year, in the deepest postwar recession.
- The “great moderation” (Bernanke, 2004): since the 1990’s “remarkable decline in the volatility of output and inflation”; sustained and sustainable output growth, particularly in emerging economies, low inflation (advanced economies, average 1991-2000 2.7%, 2001-2007 2.1%)
- Some hiccups (1997-98, 2001), inequalities, imbalances.
- But... The end of (economic) history?

Real GDP - growth rates

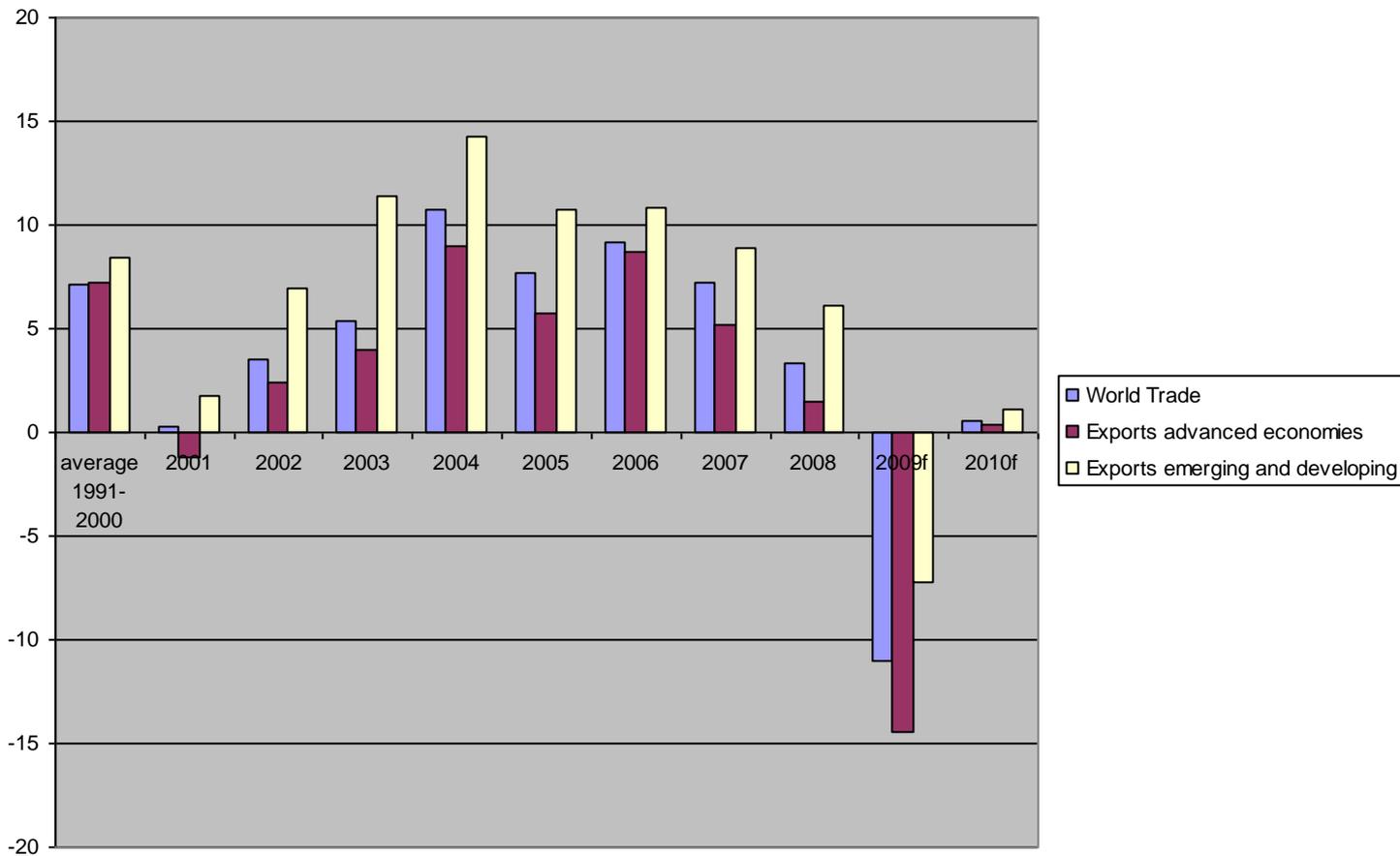


Per capita GDP 1990=100

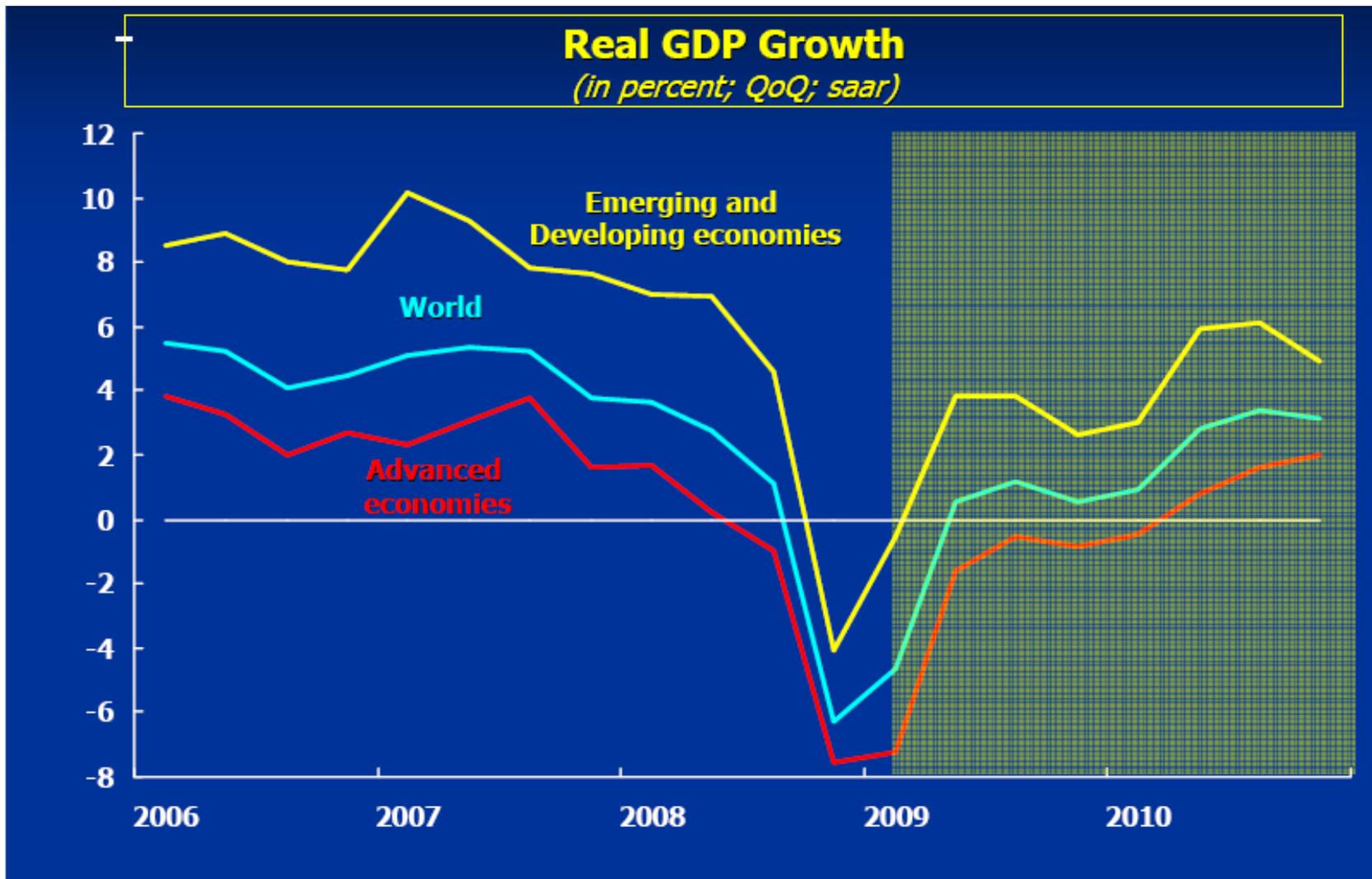


- The recession began in the US in 2008/III and spread rapidly
- With a fall of world output and a collapse of world trade
- And a steep rise in unemployment
- The recession appears to be **U** shaped: it will last 5-6 quarters; slow recovery projected.
- Worryingly similar to the great depression
- But...

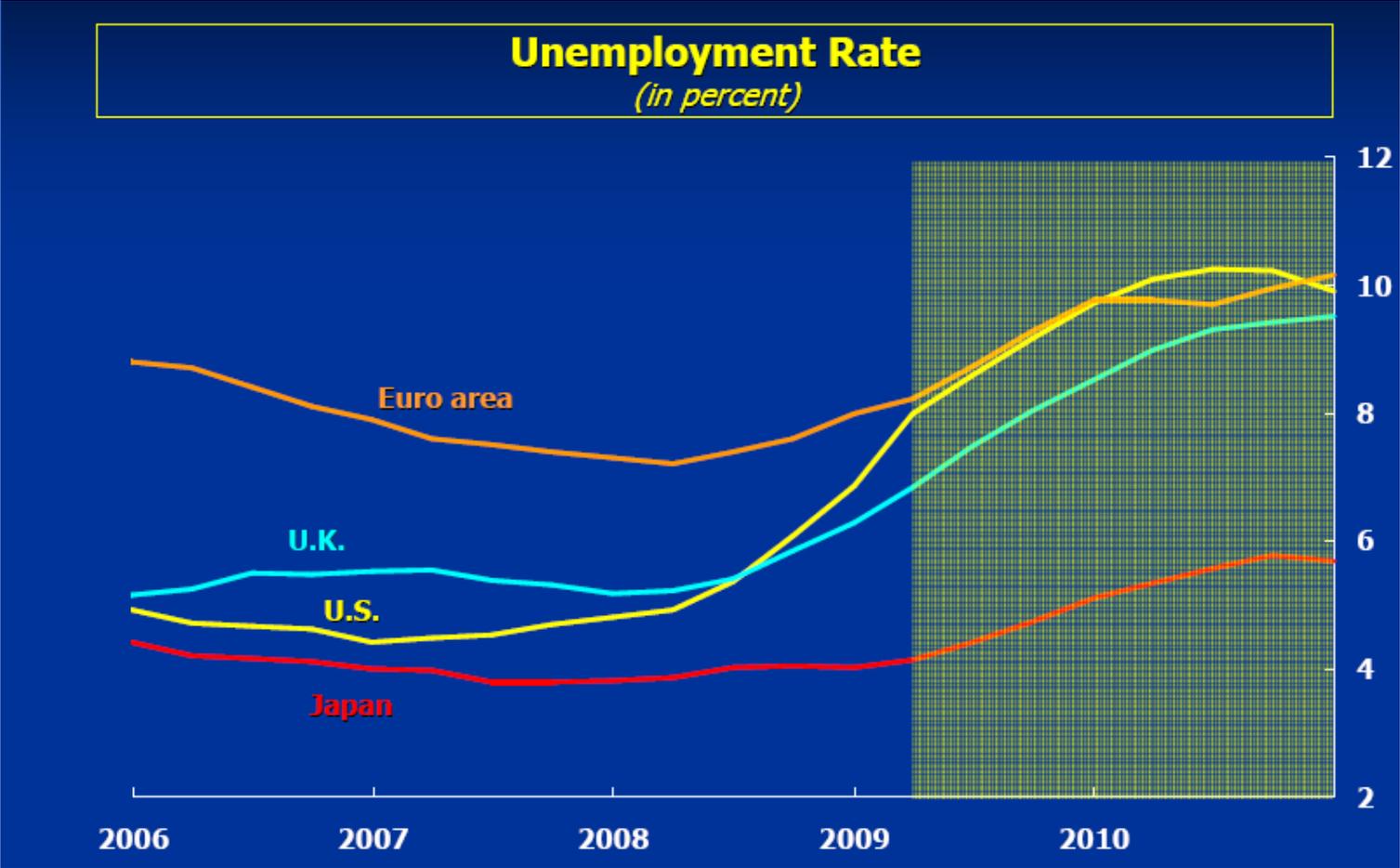
World Trade - growth rates



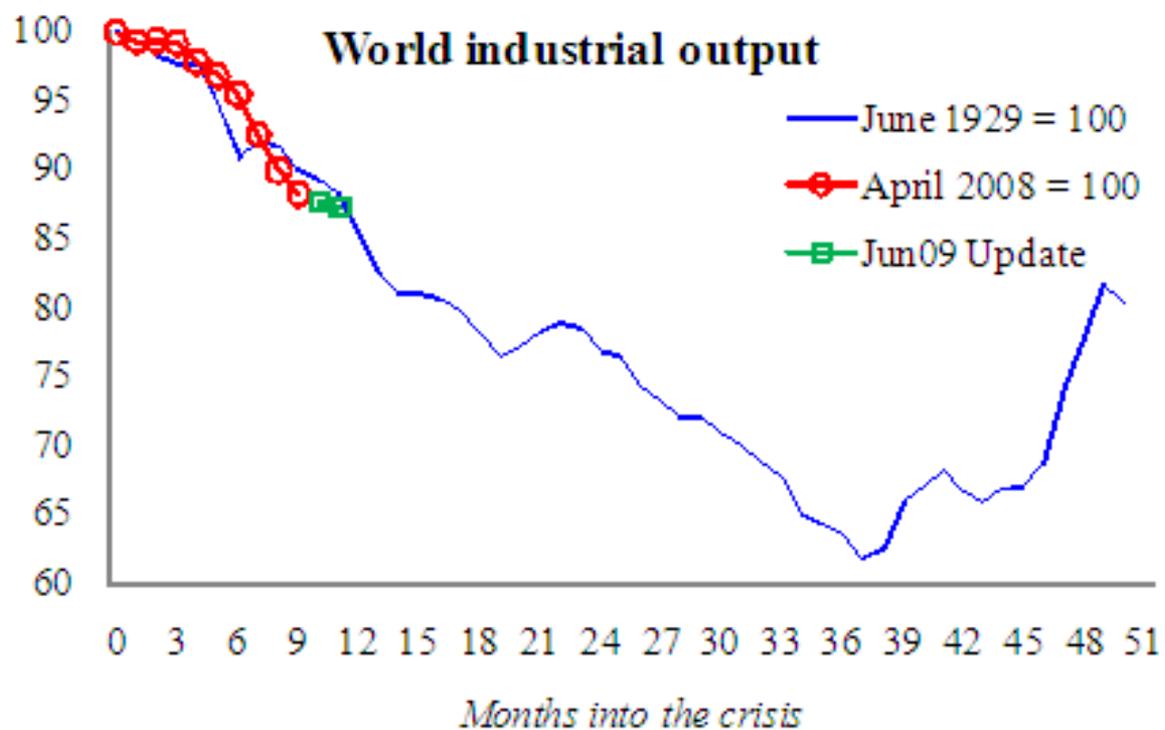
Source: Blanchard - IMF



Source: Blanchard - IMF

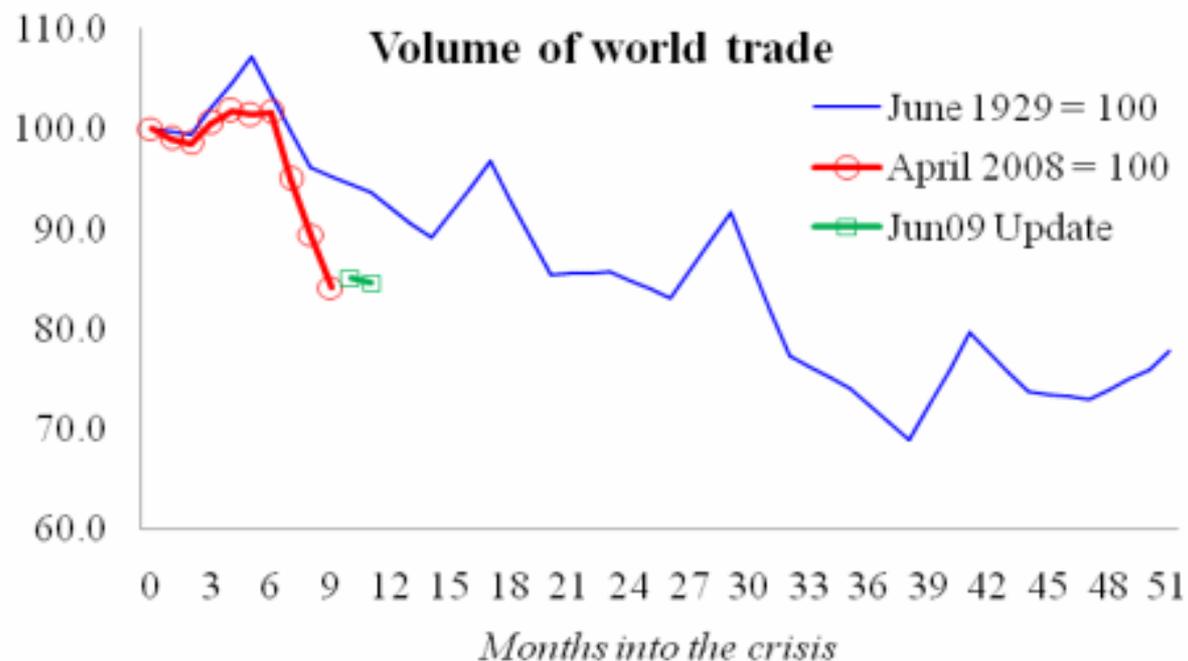


Updated Figure 1. World Industrial Output, Now vs Then (updated)

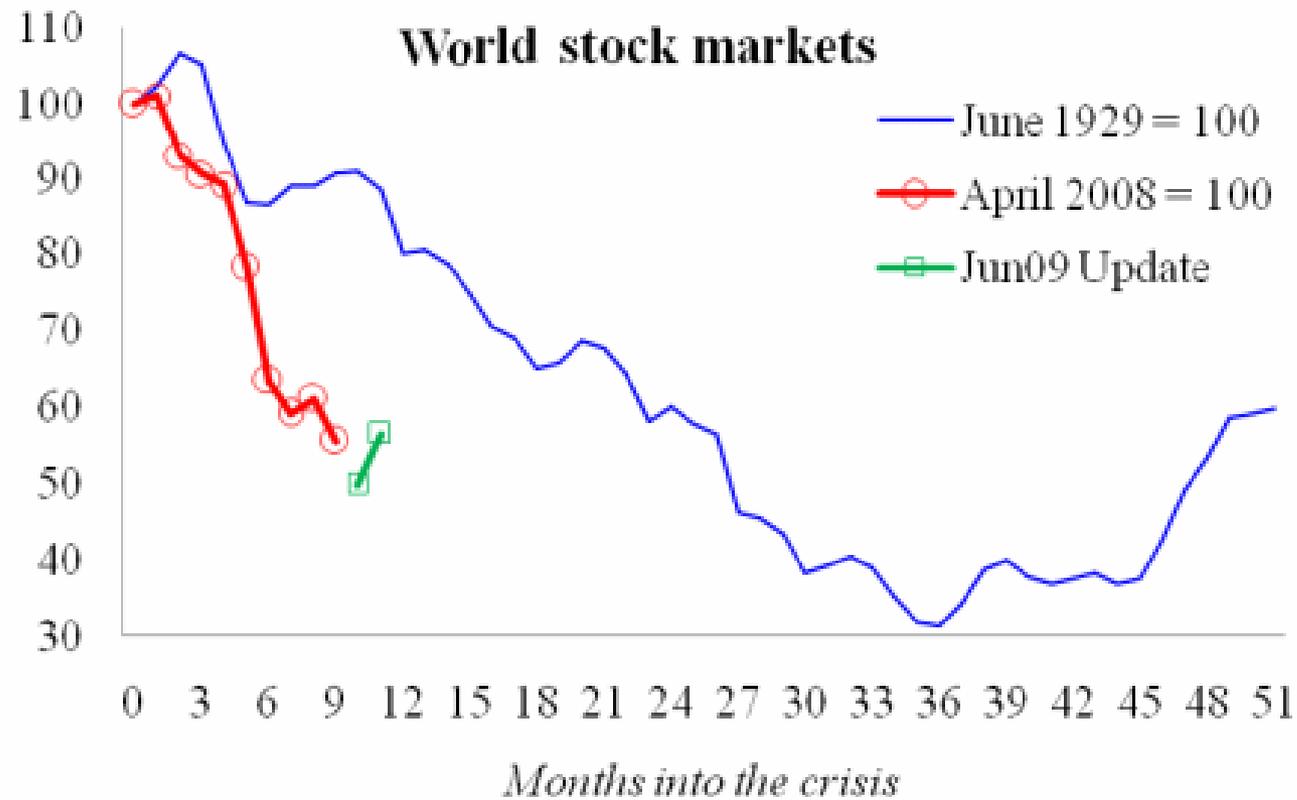


Source: Eichengreen and O'Rourke, 2009

Updated Figure 3. The Volume of World Trade, Now vs Then (updated)



Updated Figure 2. World Stock Markets, Now vs Then (updated)



- The hike of oil and commodity prices played a role in dampening growth between 2007 and 2008,
- but the slowdown turned into a major recession because of the financial crisis that started in June 2007, became gradually more acute over the next 12 months, and reached an extreme stage in September 2008, when the world financial system risked a meltdown.
- Two channels through which financial dislocations had real effects:
 - credit crunch
 - wealth losses
- Rest of the exposition devoted to the financial crisis.

- Main issues:

The crisis: remote and proximate causes

Mechanics of the crisis

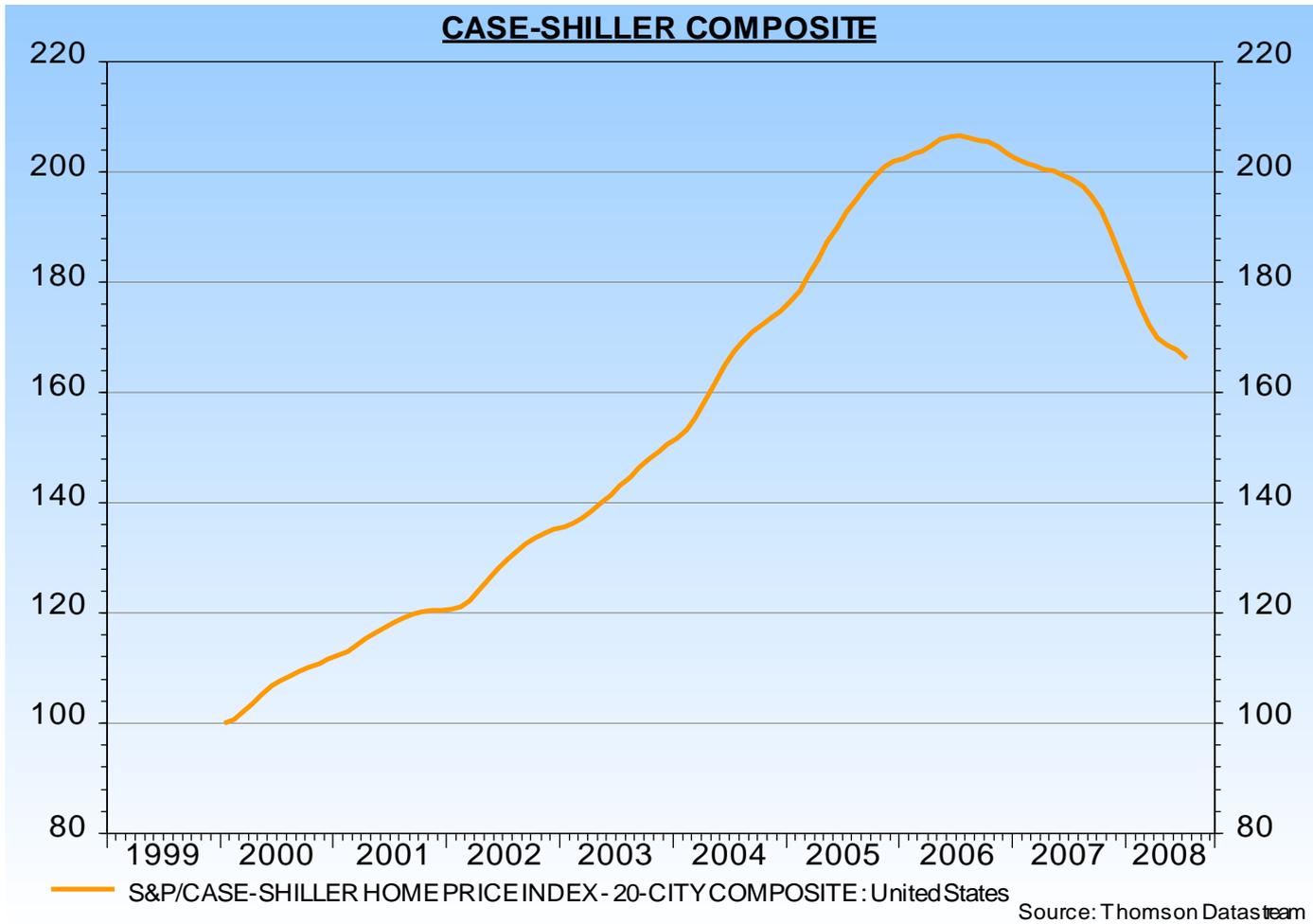
An interlude: economics and the crisis

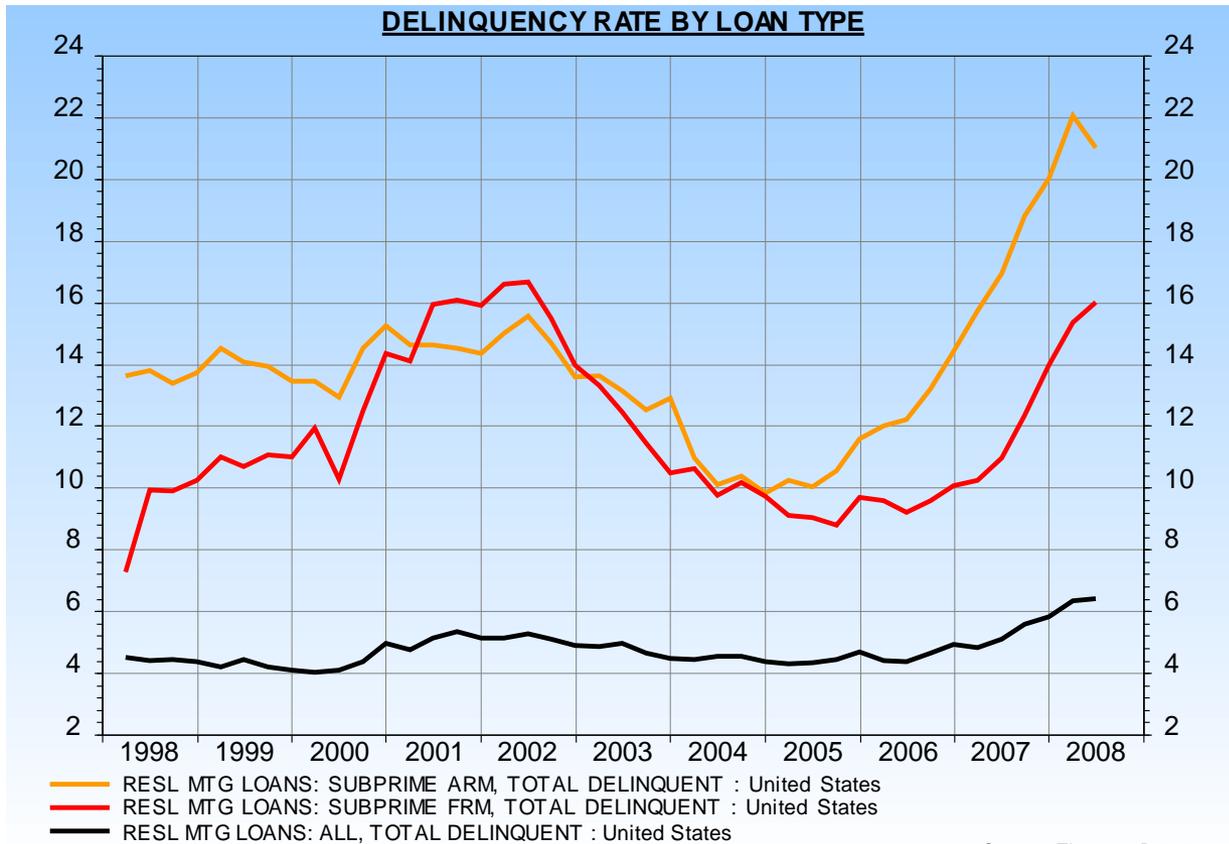
Policy reactions

Outlook and lessons

2 - A small spark, a big fire

- Since 2006 an end to six years of uninterrupted increases of house prices: increase in mortgage delinquency rates
- Markets unsettled in February 2007, but then recovery. In June 2007 difficulties for two Bear Stearns funds specializing in ABS. At the news of suspension of redemptions securities markets collapse, then money and credit markets seize up
- Unexpected developments: “While ...weaknesses had been identified, few predicted that they would lead to such dislocation in the global financial system.” (Bank of England: *Financial Stability Report*, October 2008)
- In September 2008 the IMF estimate of potential losses was US\$ 170 bn.





Estimate of potential losses 2007-2010 –bn US \$
(IMF, april 2009)

	Banks	Others	Total
United States			
Loans	601	467	1068
Securities	1002	641	1644
- mortgage	<i>740</i>	<i>473</i>	<i>1213</i>
TOTAL	1604	1108	2712
Europe			
Loans	551	336	888
Securities	186	120	305
-mortgage	<i>138</i>	<i>87</i>	<i>225</i>
TOTAL	737	456	1193

- Premise

The chase for a mono-causal explanation is a misleading exercise.

Many factors have concurred to the present situation

“...It will surely be some time before researchers can sort through the events.....the lessons to be learned are likely only going to be known when there is some distance from the events. But, since panics are rare, it may be that we never have the ability to formally test in the way that is acceptable to academic economists. The scholars who studied panics before us...described the events with narratives. Perhaps this is the best we can do.”(Gorton, 2008)

3 - A fertile environment for the crisis

3.1 Macroeconomic conditions

Global imbalances and their implications

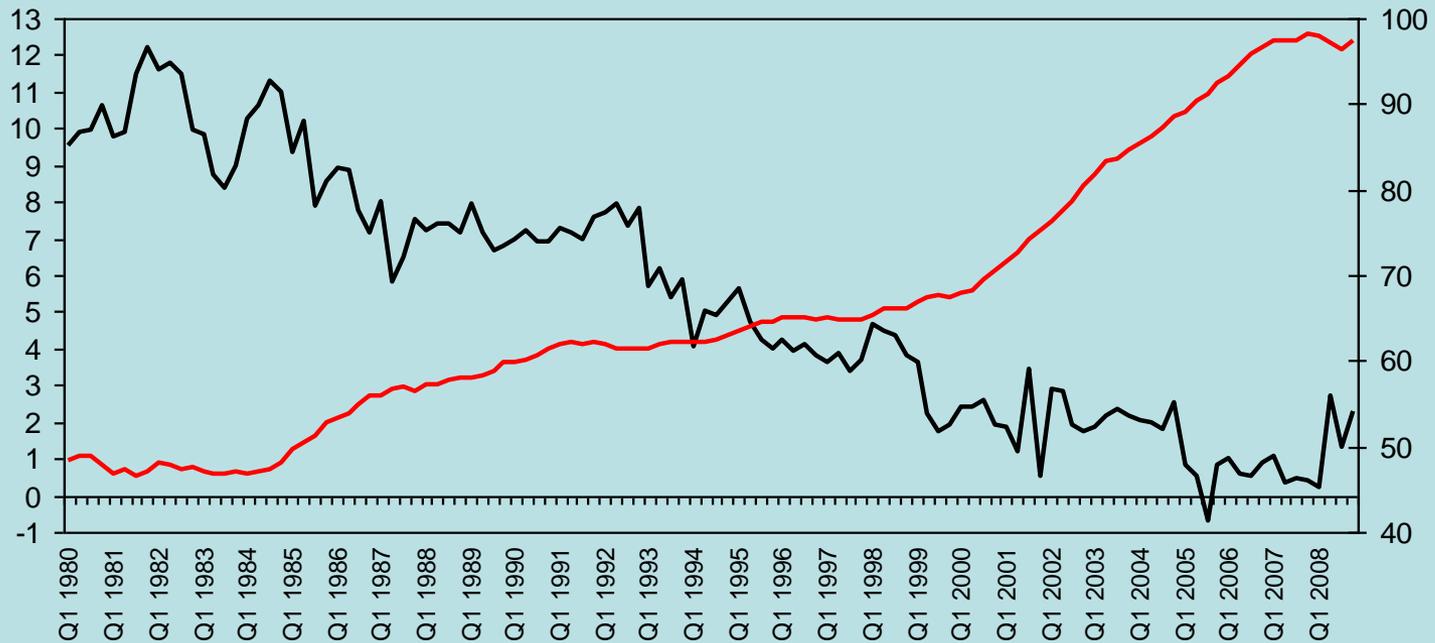
- A polar situation in two areas of the world:
US and others: desired E exceeding Y
China and others: Y exceeding desired E (savings glut)
- Capital flows towards the high expenditure area allow (temporary) equilibrium at high output level. (Otherwise adjustment to lower overall Y).
- Implication: high debt levels
encouraged by economic policies: monetary and fiscal

Savings and net lending – ratios to GDP

	av. 1995-2002	2005	2007
Savings			
Advanced economies	21,3	20,1	20,5
US	16,9	14,8	14,2
Newly ind. Asian economies	31,9	31,4	31,8
Net lending			
Advanced economies	-0,3	-0,9	-0,7
US	-2,7	-5,1	-4,6
Newly ind. Asian economies	2	5,5	5,8

US Households' debt and personal savings

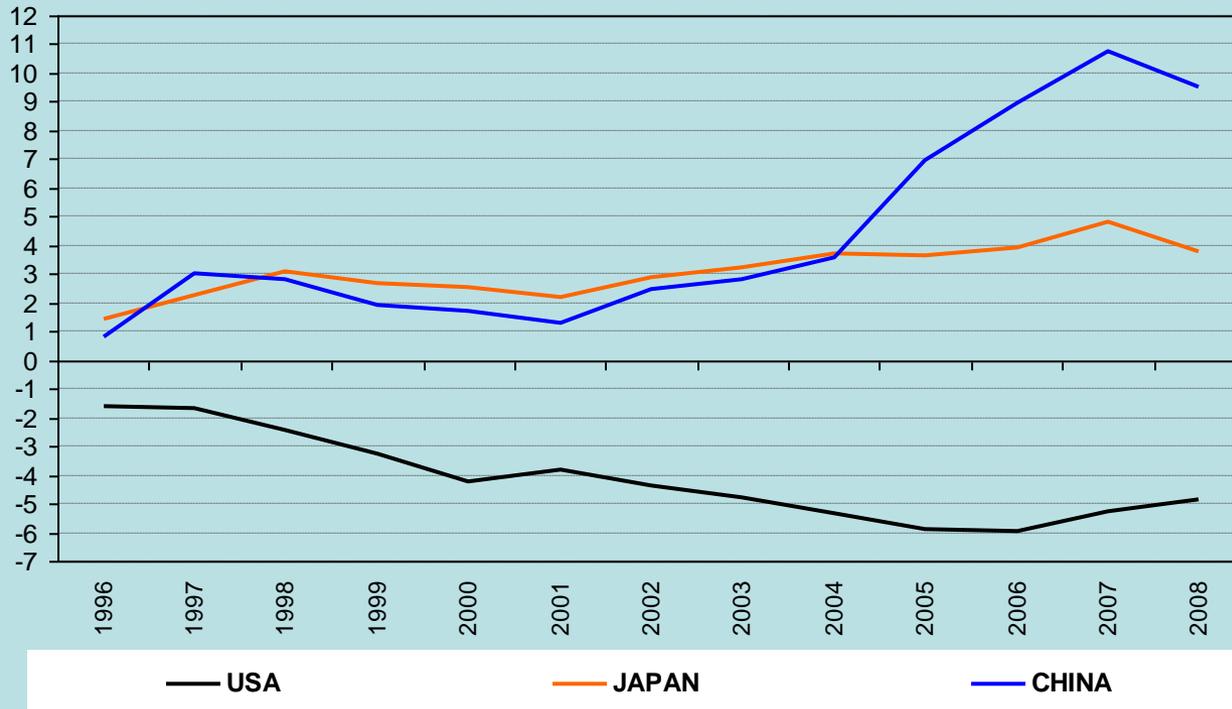
US household debt vs personal savings (val. %)



— US household saving rate

— US Household debt % GDP (scala dx)

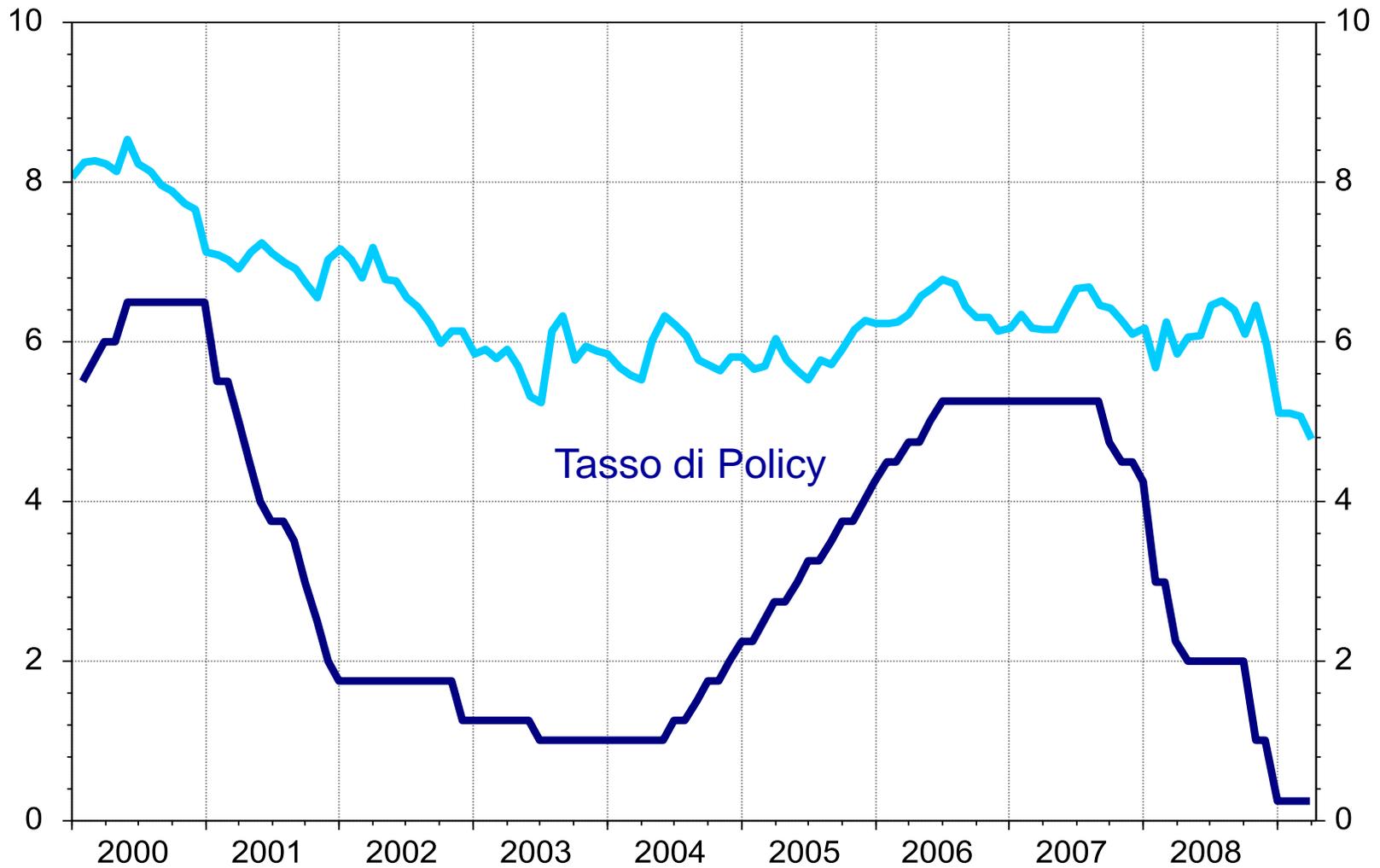
CURRENT ACCOUNT BALANCE (% GDP)



Foreign exchange reserves (bn. US\$)

	2001	2004	2008
Emerging & developing	877.1	1805.2	5179.8
Asia	379.5	933.9	2745.6
China	216.3	615.2	2134.5

TASSI D'INTERESSE USA



Source: Thomson Reuters Datastream

3.2 Financial innovation: the new business model of banks

- Accelerated transition from the traditional “originate to hold” (OTH) model to the new “originate to distribute” (OTD) model:
 - loans are pooled, sold to a vehicle, securitized and distributed to investors with the attendant risk;
 - credit thus becomes something that “can be bought and sold on the markets...instead of being hold on the intermediaries’ balance sheets”;
- The technique of securitization: slicing and dicing
- Insuring against credit risk.

CMO: Collateralized Mortgage Obligations *Sample*

- An SPV is set up to purchase mortgages and issue bonds which pay out in tranches. Tranches are orderings of payments in terms of seniority. Each tranche is has its own credit rating.

Bond Tranches	Thickness	"Loss Support"
AAA	80%	20%
AA	5%	15%
A	5%	10%
BBB+	2%	8%
BBB	1%	7%
BBB-	2%	5%
BB	1%	4%
Overcollateralization (Equity)	4%	0%

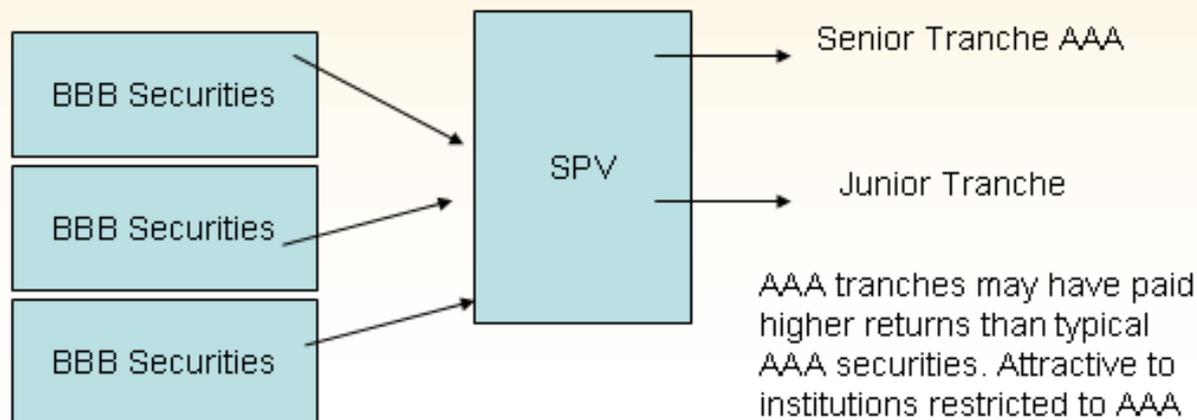
M. Brunnermeier, Princeton U. Slides.

Commercial and Investment Banks often set up SPV

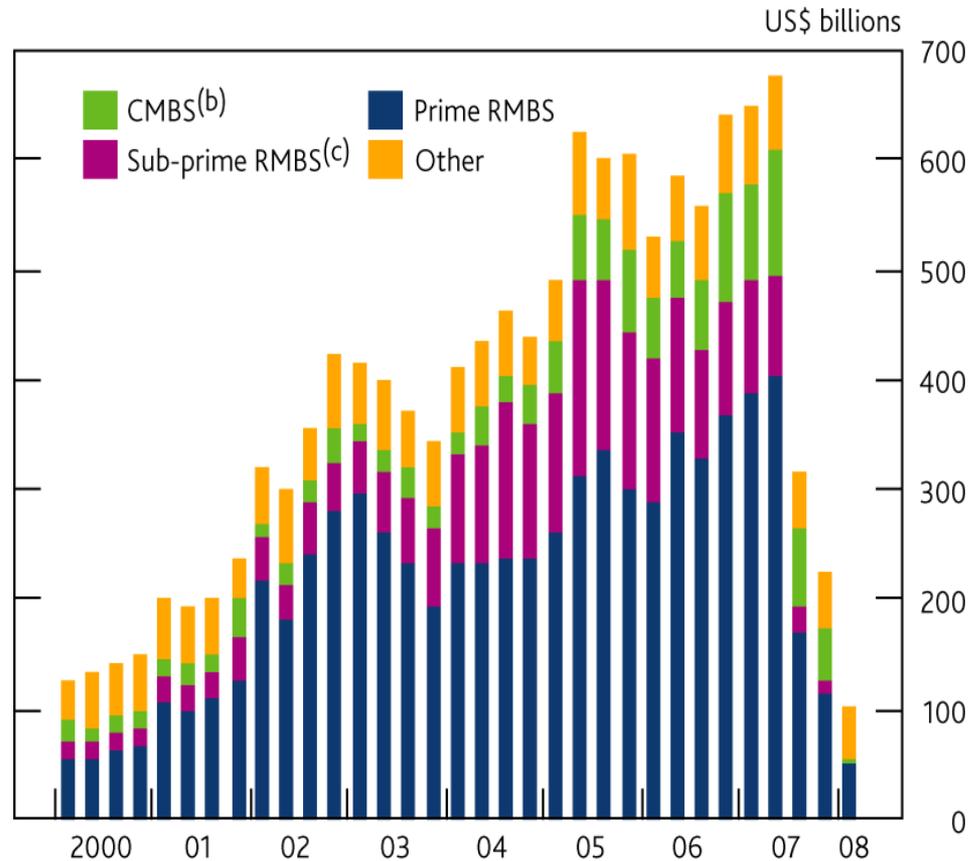
Special purpose vehicle: Quasi-independent company set up to manage asset.

Collateralized Debt Obligations

- A special purpose vehicle that buys quantities of debt securities (often MBS or CMO tranches) that might be low rated and turn it into tranches some of which might be better rated.



Global issuance of asset-backed securities(a)



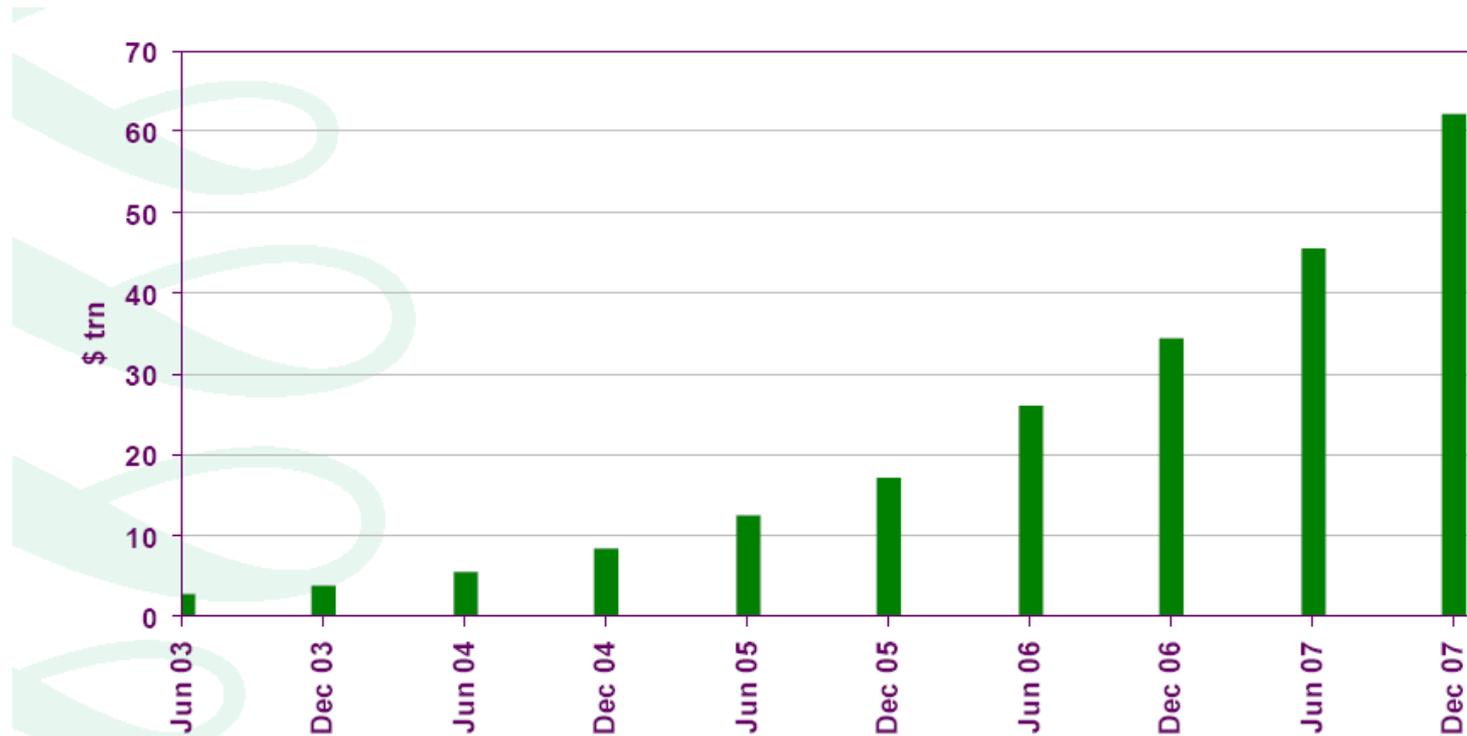
Source: Dealogic.

(a) Quarterly issuance. 'Other' includes auto, credit card and student loan ABS.

(b) Commercial mortgage-backed securities.

(c) Residential mortgage-backed securities.

Value of outstanding credit default swaps (Source: Turner)



3.3 The potential/alleged benefits of the new model

- o A new market (→ financial development → economic development) allowing investors access to credit products and hence to new risk-return profiles
- o Pooling and distribution of risks outside the banking system: hence easier or greater access to credit granted to new categories – from private equity operators to subprime borrowers
- o For the banks: increase in the ratio between origination of credit and capital; hence an overall increase in credit; rating of credit products higher than that of the originators, with a reduction in (risk weighted) capital requirements
- o Owing to fragmentation and distribution of credit risk, reduction in the exposition of banks to (aggregate/systemic) tail risk arising from unforeseen fundamental shock or sunspots
- o Whence the assumption that the OTD model would allow greater financial stability (Greenspan, 2005, IMF, 2006).
- o Instead...

3.4 Theory and ideology

- Developments in economic theory
 - a) Finance: New tools and methods. Arbitrage models based on the EMH. Financial engineering.
 - b) Macroeconomics. Convergence on DSGE models with some rigidities but with no place for credit cycles.
 - c) The virtues of financial deepening (unqualified).
- Proximity (and revolving doors) between politicians and regulators and, on the other side, the regulated.
- The relevance of the financial sector and the virtues of vibrant markets.
- Message to regulators
 - Don't be in the way of financial development:
light touch

4 – The fault lines of the new model and its degeneration

Highlights:

“During a **period of strong global growth, growing capital flows, and prolonged stability...**, market participants sought **higher yields without an adequate appreciation of the risks** and failed to exercise proper due diligence. At the same time, **weak underwriting standards, unsound risk management practices, increasingly complex and opaque financial products,** and consequent **excessive leverage** combined to create vulnerabilities in the system. **Policy-makers, regulators and supervisors, in some advanced countries, did not adequately appreciate and assess the risks** building up in financial markets, keep pace with financial innovation, or take into account the systemic ramifications of domestic regulatory actions.”

Declaration of the Summit on Financial Markets and the World Economy, November 15, 2008

4.1 Credit origination and the opaqueness of the new products

Credit origination

- *Increasingly lax standards in credit origination* due to:
 - mistaken assumption that the rise in house prices would continue, lowering loan/equity ratios, thereby allowing easy refinancing;
 - incentives to provide raw material for securitization under the pressure of growing demand for credit related structured products.
- *Subprime lending*: to borrowers without requisite credit rating on the assumption of refinancing with capital gain on the house: from 10% of new loans on 1998-2003 to 40% in 2006. Specialized intermediaries selling loans for packaging to satisfy demand of structured credit securities.
- Hence incentives to provide quantity at the expense of quality

Opaqueness

- a) Owing to the “interlinked or nested unique security designs” of mortgage backed assets, it was impossible for anyone to appraise the location and the extent of the underlying risk” (Gorton, 2008).
- b) Problems of asymmetric information, making it impossible to determine risk exposures properly.
- c) Credit products non standardized. Issued and negotiated over the counter, without a secondary market and hence no price discovery until an index representative of their value (ABX) was launched in 2006.

High liquidity risks unappreciated as long as the going was good.

4.2 Rating

Importance of rating as safe harbour for institutional investors (and Basel II). Tranching allows to construct highly rated securities out of low quality loans.

- Conflicts of interest of rating agencies: paid by issuers and earning fees in the structuring of products.
- Inherent weaknesses of the CRA's statistical models: average default probabilities determining loss supports computed on the basis of recent history of rising house prices and low default rates; assumptions on 0/low correlation of default events
- Neglect of liquidity risk
- In less than 2 years downgrading of: 25% of AAA tranches and 25-40% of Aa1-Aa3 tranches

4.3 The growth of credit and leverage: an inverted financial pyramid

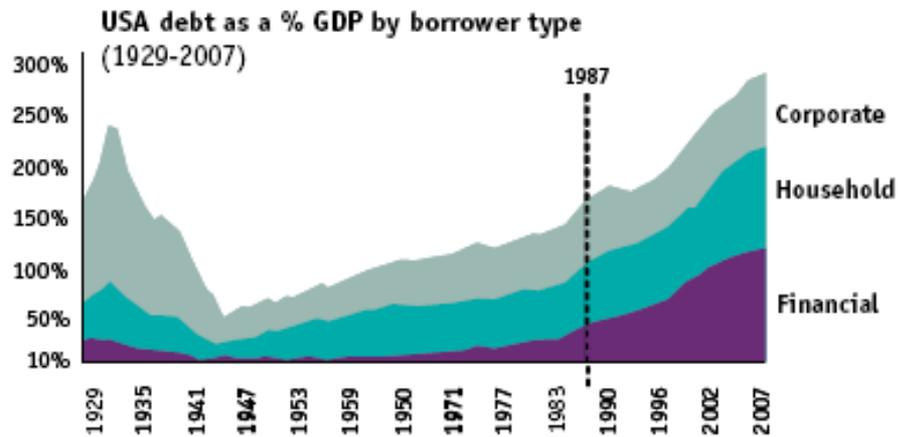
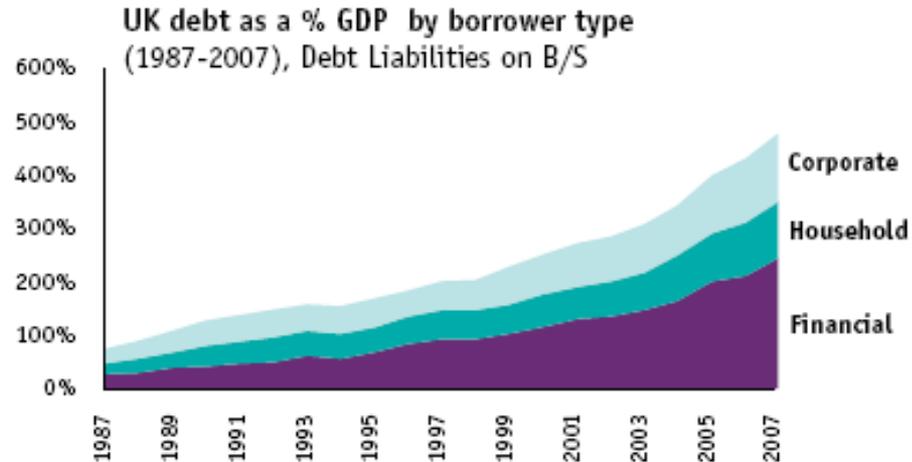
The search for yield and the underpricing of risk together with financial innovation caused an unprecedented growth of credit and hence of leverage, partly unrelated to the original underlying credit relationships.

Owing to the differential between securities yields and the cost of credit, leverage was functional to short-term profits (and bonuses). The 2/20 rule as an incentive to the assumption of risks.

Supply of synthetic or n-powered intrinsically leveraged instruments that were a multiple of the underlying credit relationships: synthetic CDO's; CDO's squared, cubed...
A game within the financial sector.

Continuous expansion of banks' balance sheets

Exhibit 1.10: The growth of the financial sector



Source: Oliver Wyman

**PAY PER WORKER IN THE FINANCIAL SECTOR AS
A PERCENTAGE OF AVERAGE U.S. COMPENSATION**

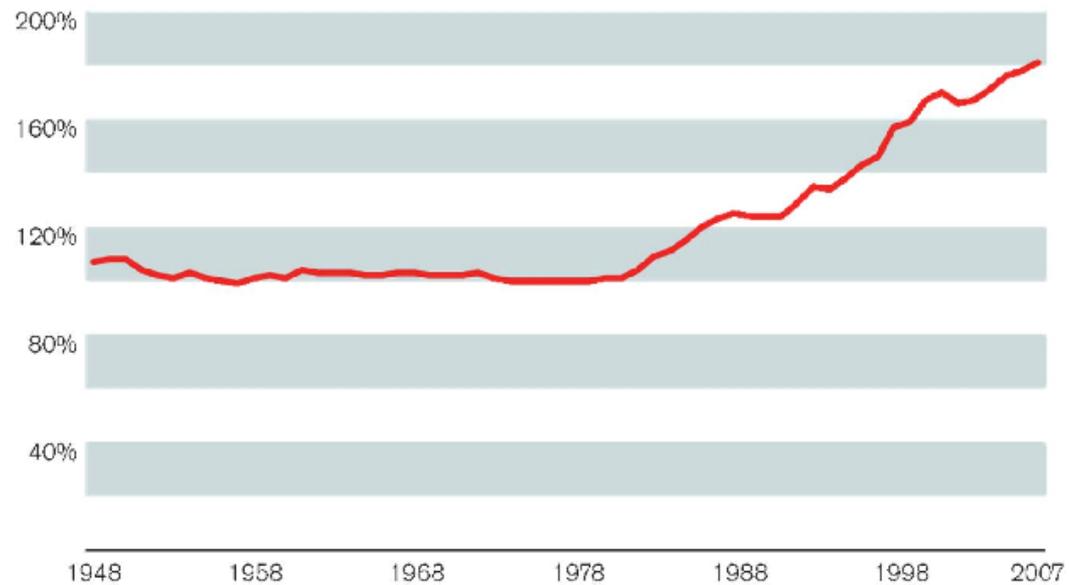
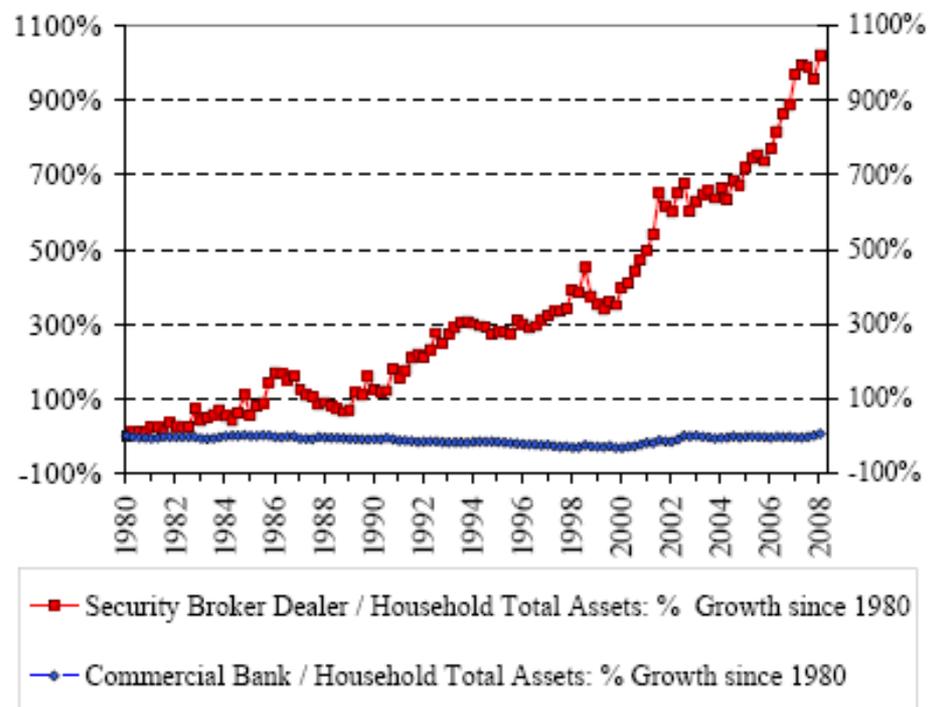


Figure 3. Growth in Broker-Dealer and Commercial Bank Assets relative to Household Assets (1980Q1 as base)
 (Source: US Flow of Funds, Federal Reserve)



A footnote.

Herd behaviour and beauty contests:

what do we mean by rational behaviour and market efficiency?

“When the music stops...things will be complicated. But as long as the music is playing, you’ve got to get up and dance. We’re still dancing” (Chuck Prince, Citi, 10 July 2007).

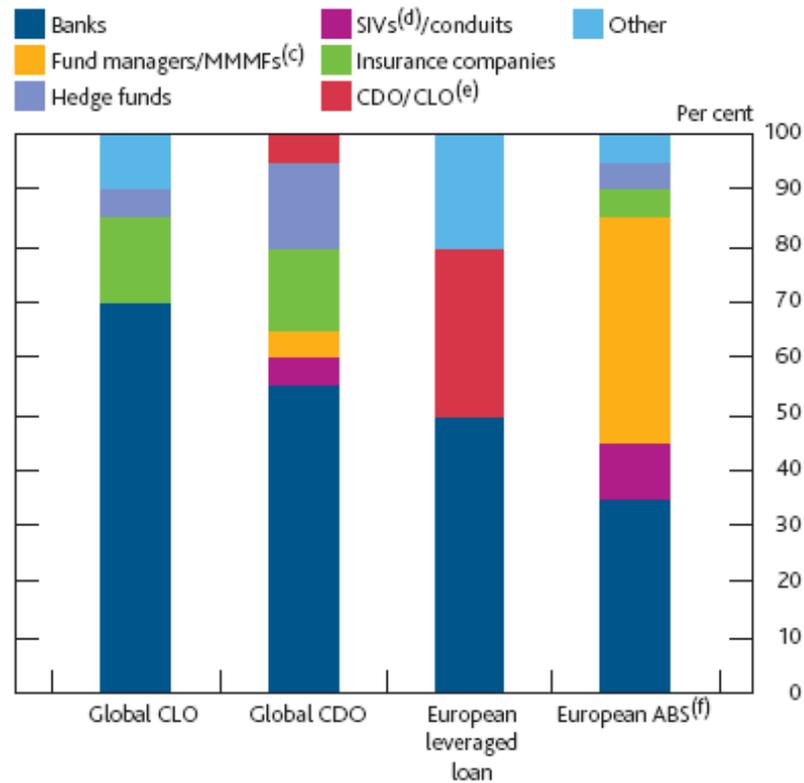
and we know what happened to them all

4.4 – Banks as hedge funds, the shadow banking system and the roundtrip of credit risk

- In principle the OTD model should contribute to financial stability by fragmenting and distributing risk to “non-systemic” investors
- The only fear for financial institutions voiced in official reports was the counterparty risk of highly leveraged non-banking entities
- The crisis instead unveiled a concentration of credit risk exposures in financial intermediaries (both depository banks and investment banks) chasing new sources of profits

“Paradoxically a large part of the credit risk never left the banking system, since banks, including sophisticated investment banks and hedge funds, were the most active buyers of structured products” (Brunnermeier, 2008)

Chart 5.9 Estimated pre-crisis investors in credit markets^{(a)(b)}



Sources: Citi, JPMorgan Chase & Co., Lehman Brothers, Standard & Poor's and Bank calculations.

- (a) Estimates taken from broker reports covering the period 2004–07.
- (b) Data shown are the average of the data sources available, rounded to the nearest 5%.
- (c) Money market mutual funds.
- (d) Structured Investment vehicles.
- (e) Collateralised debt obligation and collateralised loan obligation.
- (f) Asset-backed securities.

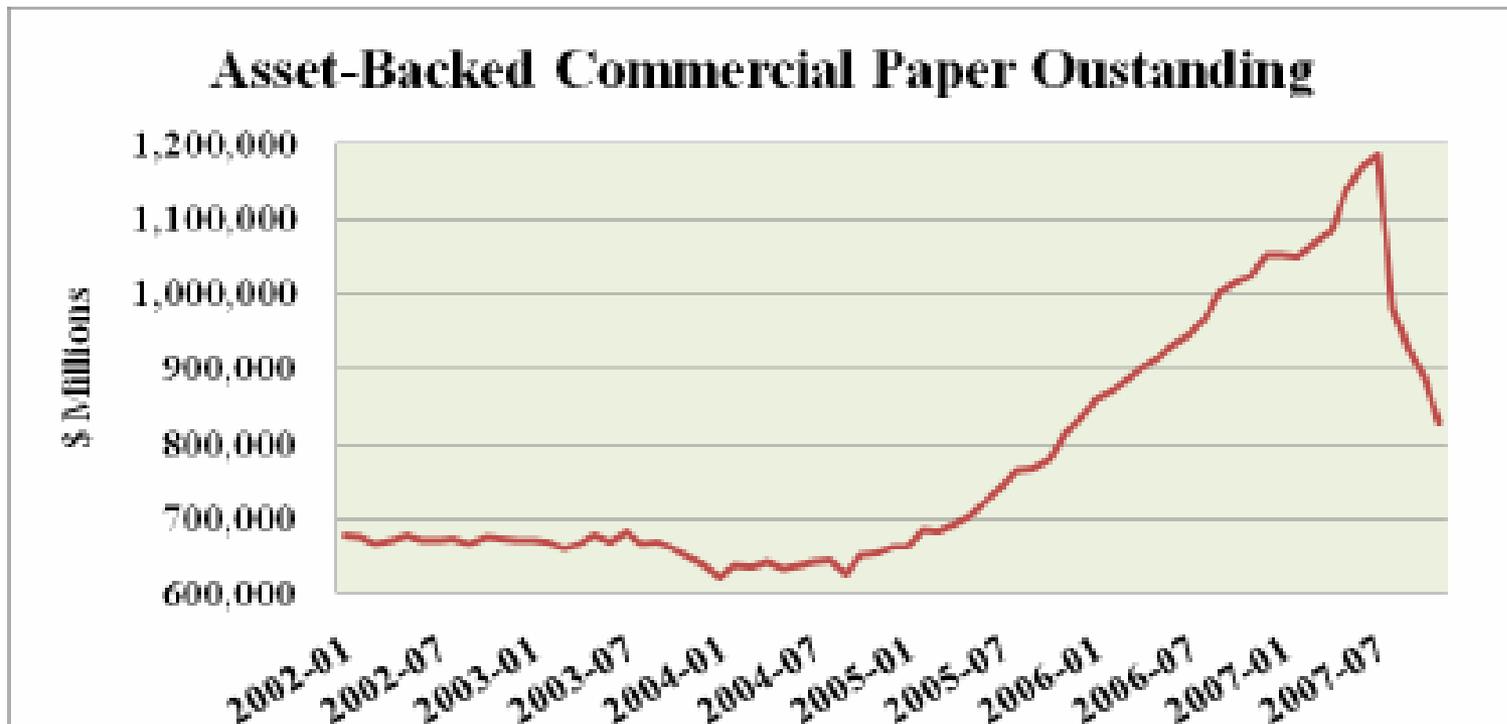
Channels of the roundtrip

- Equity tranches of the securitized credit
- Structured credit products on the banks' trading books
- Credit lines or commitments of last resort to sponsored off-balance sheet vehicles (SIVs), thinly capitalized, investing in all kinds and tranches of structured credit products Reputational commitment to owned mutual and hedge fund where structured credit products were placed
- warehousing leveraged loans for private equity operations to be securitized.

The extent of banks' exposure came as a surprise while nobody new which bank was exposed by how much

(Commitments as % of capital: Citi 77.4; ABN 201.1)

- Financing structure of banks' operations:
financing long-term, illiquid assets with very short term liabilities on the wholesale market: overnight and short-term repos and short-term commercial paper to be rolled over



4.5 Supervisors and regulators: eyes wide shut

- Inefficiencies: the nightmare of the “balkanized” US regulatory setup.
- Ideology: “The market will take care of itself” – hence “light touch”
- The lobbies: the unrelenting action of financial institutions on Congress to prevent regulatory initiatives – examples
- Inability to understand financial innovation and its implications: regulators always behind the curve

Regulators were worried – but not enough to take the punch bowl away before the party got too wild.

In particular they worried about hedge funds as counterparties to the banks but were seemingly unaware that the banks themselves, which fell in principle under their supervision, should have been the major reason of worry

5 – The mechanics of the crisis

5.1 The spark

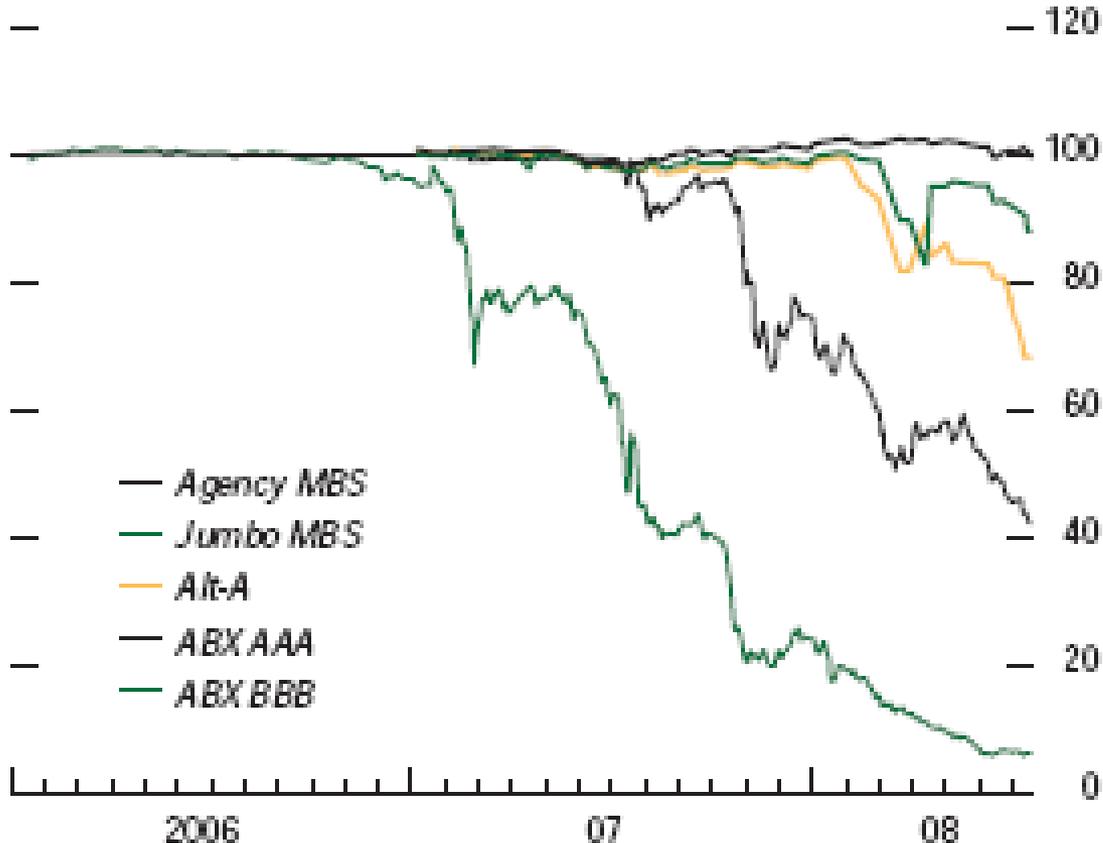
- First months of 2007: difficulties for some originators.
- Fall in the newly introduced ABX index
- Fall in the valuation of securities

Note. There being no market, ABSs were valued according to model estimates. After the ABX index was introduced accountants used it to establish the fair value of securities following accountin standards

- June: Rating agencies start downgrading or placing on negative watch issues of RMBSs and tranches of CDOs
- June 20: two Bear Sterns hedge funds shut down or bailed out

Figure 1.9. Prices of U.S. Mortgage-Related Securities

(In U.S. dollars)



Sources: JPMorgan Chase & Co.; and Lehman Brothers.

Note: ABX = an index of credit default swaps on mortgage-related asset-backed security; MBS = mortgage-backed security.

5.2 Two engines of crisis at work

A) Balance sheets and deleveraging (Adrian and Shin, 2007)

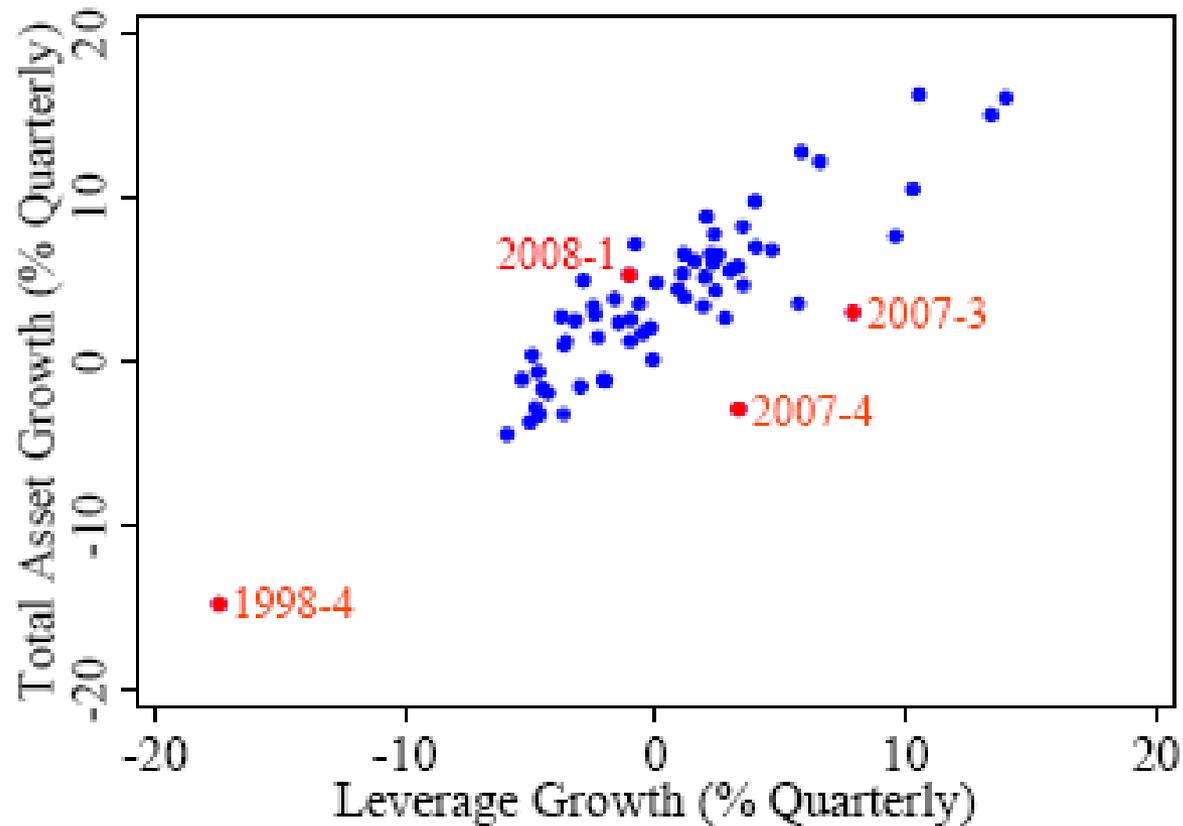
For a given leverage, intermediaries' balance sheets expand/contract if prices of assets rise/fall

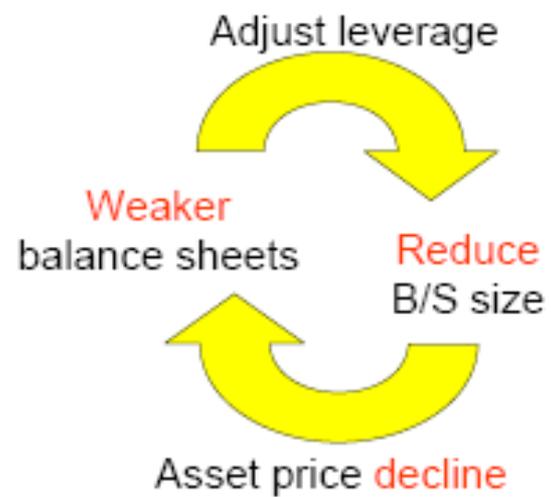
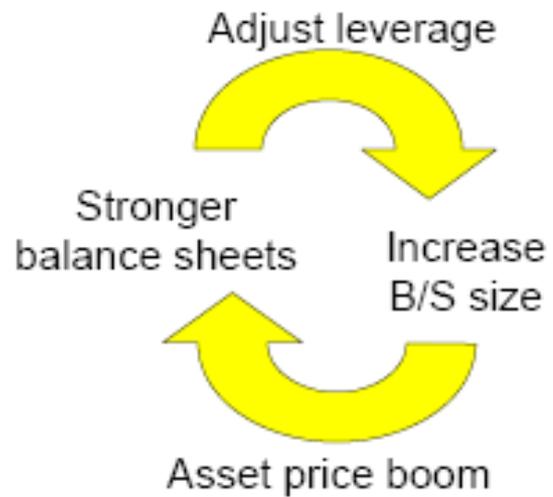
Target: $Leverage = Assets/Equity = 10$

	<u>Assets</u>		<u>Liabilities</u>		
(1)	Securities	100	Equity	10	
			Debt	90	
(2)	Securities	101	Equity	11	$\Delta price=1$ $Leverage = 9,2$
			Debt	90	
(3)	Securities	110	Equity	11	
			Debt	99	$\Delta debt = 9$
(4)	Securities	99	Equity	9	$\Delta price= -1$, $Leverage = 11$
			Debt	90	
(5)	Securities	90	Equity	9	
			Debt	81	$\Delta debt = - 9$

- Cyclical nature of leverage

Figure 6. Leverage Growth and Asset Growth of US Investment Banks (Source SEC; Adrian and Shin (2007))





B) Liquidity spirals (Brunnermeier and Pedersen, 2007)

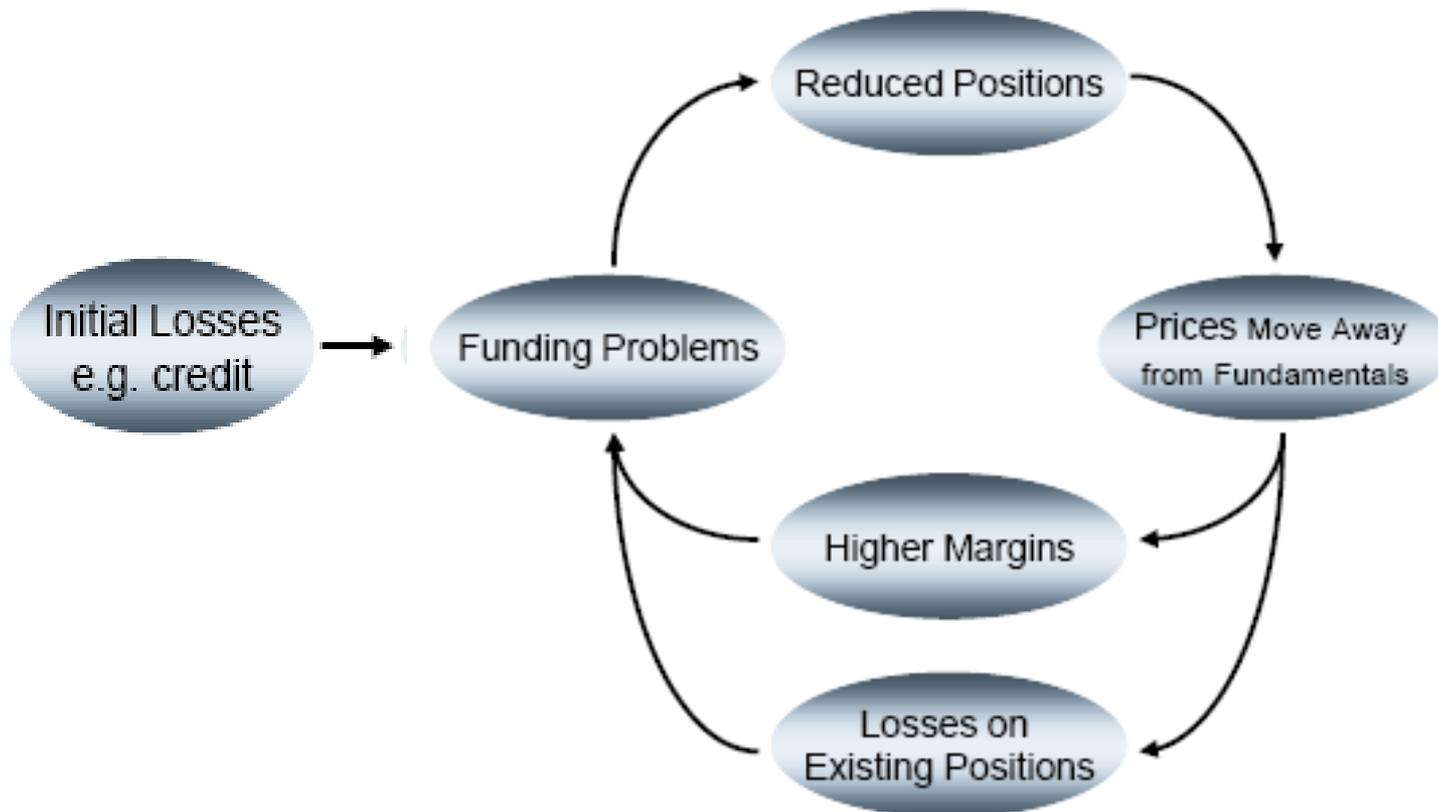
- Two notions of liquidity:

Funding liquidity: ready availability of funds to borrow, as measured by level of *haircuts*, possibility to *roll over* short-term debt...

Market liquidity of an asset: possibility of liquidating an asset at low trading costs and without affecting market prices, as measured by *bid-ask spread*, *market depth* (effect of sale or purchase on price), *resiliency*

- A deleveraging process sets in motion a market-funding liquidity spiral:

shock on balance sheets → shortage of capital → interaction of market and funding liquidity → disintermediation → liquidation of assets → fall of asset prices → margin calls → further loss of value of assets.



- The feedback effects are stronger if:
 - Securities held as assets are illiquid, as was the case for ABSs, CDOs and the like;
 - Marking to market is mandated in a situation of illiquid and disfunctional markets;
 - Further shocks to underlying values are expected (falls in house prices, rise in delinquency rates)
 - There is uncertainty regarding the location of risk: suspicions on the solvency of counterparties and/or the worth of the collateral dries up financing in the short-term wholesale market.

Then:

securities prices collapse irrespective of any consideration of fundamental values;

short-term funding becomes impossible: the commercial paper market dries up; extraordinary spikes in interbank rates.

C) Disorderly deleveraging leads to a credit crunch

What is initially a liquidity problem becomes a solvency problem as

- capital is depleted by the continuing fall in asset market values exceeding the decline in fundamentals
- and refinancing becomes impossible
- while investors are unwilling to recapitalize the banks
- which are obliged to cut the size of their balance sheets by reducing credit

Feedback between recessionary consequences and new credit problems.

5.3 – The unfolding of the crisis

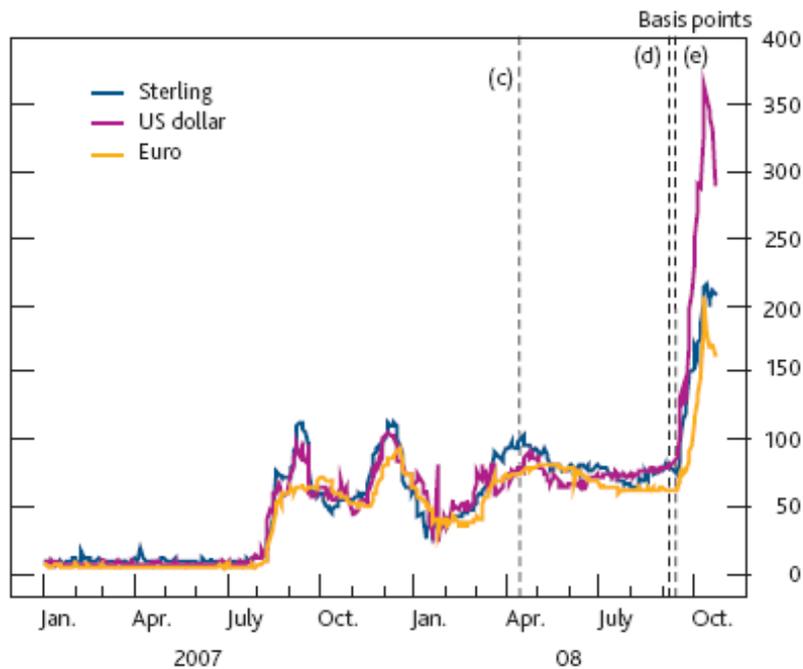
- *June-July 2007* – First wave of sales of subprime RMBSs and increase in spreads.
- *July 2007* – As uncertainty on extent and location of risk exposure increases, higher margins and other credit markets affected
- *August 2007* – Contagion affects short-term credit and money markets: while demand for funding increase as securitization is no longer possible, ABCPs issues dry up and the interbank market ceases to function: IKB, Sachsen LB
- *Autumn 2007* – Repeated write-downs and mounting losses of major banks due to further falls of securities' prices and loss of confidence in credit insurance providers.
- *January-March 2008* – Financial difficulties more acute interact with economy slowdown; hedge funds and other highly leveraged investors begin liquidating their position. Bear Stearns, acquired by JPMorgan with a 29 bn Federal Reserve guarantee

- *Spring 2008* – Further losses unveiled by major banks
- *Summer 2008* – Interbank rates remain high. Closure of US mortgage lender IndyMac. Crisis of Fannie Mae and Freddie Mac, unable to obtain finance and taken into conservatorship.
- *September 15 2008 to 1st quarter 2009* – Authorities let Lehman file for bankruptcy with devastating effects because of counterparty exposures. Merrill Lynch purchased by BoA. Collapse of AIG, provider of credit insurance, effectively nationalized. Fortis and Dexia need governments' intervention in equity. Money market funds experience massive withdrawals. Fire sale of risky assets → further banks' losses → shortage of capital → need for government recapitalization. Massive government intervention in all countries.

Interbank rates spike again. Equity markets collapse. Flight to quality (Treasuries), while contagion affects emerging markets. Collapse of Icelandic banking system⁵⁶

- *Spring 2009*: situation eases

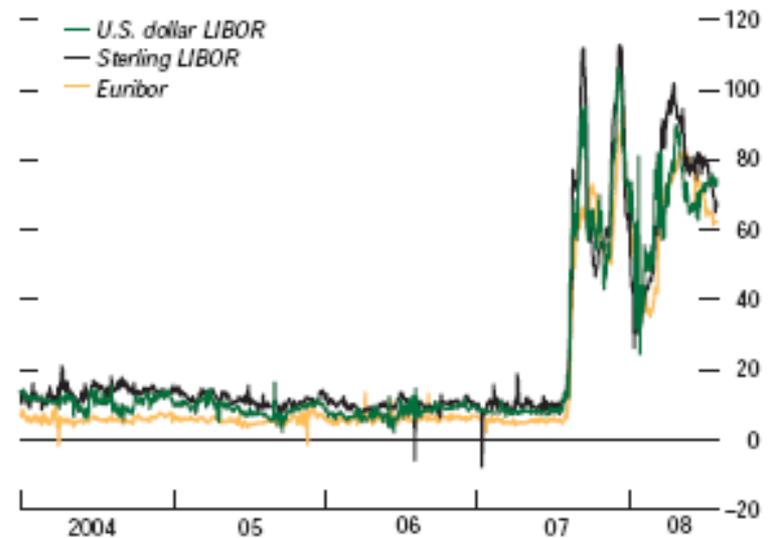
Chart 3.3 Three-month interbank rates relative to expected policy rates^{(a)(b)}



Sources: Bloomberg and Bank calculations.

- (a) Spread of three-month Libor to three-month overnight Indexed swap rates.
- (b) Data to close of business on 20 October 2008.
- (c) April 2008 Report.
- (d) Fannie Mae and Freddie Mac taken into conservatorship.
- (e) Lehman Brothers Holdings files for Chapter 11 bankruptcy protection.

Figure 2.2. Spread Between Three-Month Uncollateralized Interbank Rates and Overnight Index Swaps
(In basis points)



Source: Bloomberg L.P.

6 – An interlude: Economists and Economics under trial

Vulgar allegations:

- ✓ inability to foresee the crisis
- ✓ excess of abstraction and of simplification
- ✓ inability to deal with financial crises

Rather:

- ✓ few understood quickly enough the nature and the gravity of the crisis and its implications
- ✓ in spite of an abundance of models of financial crisis (see Allen and Gale 2008)

Perhaps the economists' responsibilities are heavier and lie elsewhere: they may have contributed to creating an environment favourable to a crisis

- This has happened in several ways:
 - Financial economists contributed to financial innovation without appraising (or warning against) the risks of new instruments
 - Uncritical analysis of the effects of financial deepening without controlling for the nature of leverage
 - Greater responsibility of macroeconomists: plenty of models with asymmetric information, heterogeneous agents, incomplete markets, multiple equilibria (crisis models); but the vulgate version which has imbibed the beliefs of regulators and policy makers (at least in some countries) is a “convergence” DSGE model featuring:

- ❖ a representative agent
- ❖ rational expectations
- ❖ efficient markets
- ❖ binding intertemporal budget constraints

where there is no room for “beauty contests”, for destabilizing financial innovation and hence for credit cycles or financial crises such as the current one.

Economics, perhaps unwittingly, provided an apparently scientific foundation to ideological preferences.

A difficult task ahead.

7 - Policies

- Extraordinary times, extraordinary measures, unprecedented in size and nature;
- With a crescendo from August 2007 to Spring 2009;
- Two aims in succession
 - ✓ restore stability and later prevent meltdown of the financial system
 - ✓ combating recession with direct and indirect support to aggregate demand.

7.1 Policies aimed at the financial system

Always behind the curve, because of ignorance of the effective situation of the banking sector and inability to understand the dynamics and implications of the deleveraging process

- *First phase.*

Provision of liquidity through central bank's operations. Since August 2007 liquidity interventions of unprecedented size, by ECB, Fed and Bank of England, with progressive extension of the counterparties admitted to refinancing, of the range of securities accepted as collateral and of the time length. Fed adapting to ECB practices. Interest rates cuts.

But short-term liquidity operations only effective to overcome temporary liquidity crises. Necessary to prevent worst outcome but insufficient to deal with the problem of illiquid assets on the banks' books.

- *From first quarter 2008: an impressive crescendo.*
 - a) Enhanced liquidity support: the Bank of England Special Liquidity Scheme.
 - b) Guarantees offered to banks' liabilities, on a selective basis or generally.
 - c) Mergers or acquisitions supported by government's guarantees
 - d) Taking over financial institutions, effectively or formally.
 - e) Government intervention to recapitalize the banking system with public money (equity, preference shares, convertible bonds).

Following table includes capital injections, purchase of assets, direct lending or lending with Treasury backing, new liquidity facilities, guarantees.

Headline support for the financial sector and upfront financing need (% of 2008 GDP)

Source: IMF, June 2009

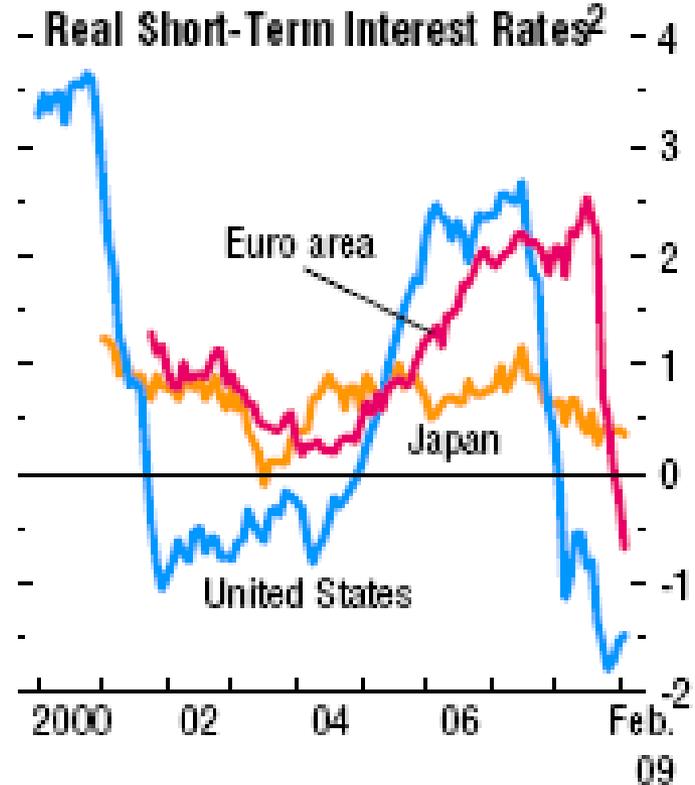
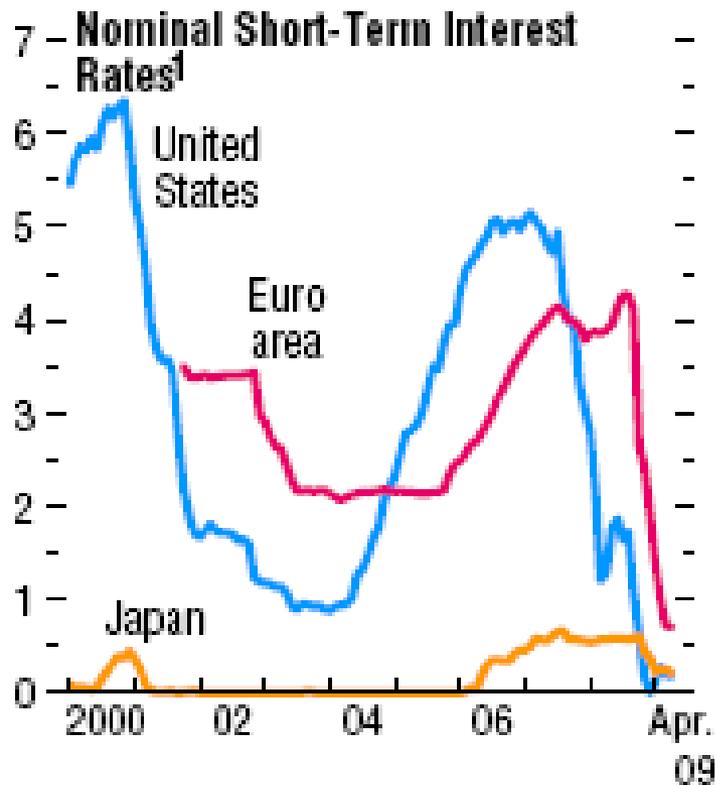
	Headline support	Upfront financing
G20 Countries	32.5	3.7
Advanced economies	50.4	5.6
- US	81.0	7.5
- UK	81.6	18.9

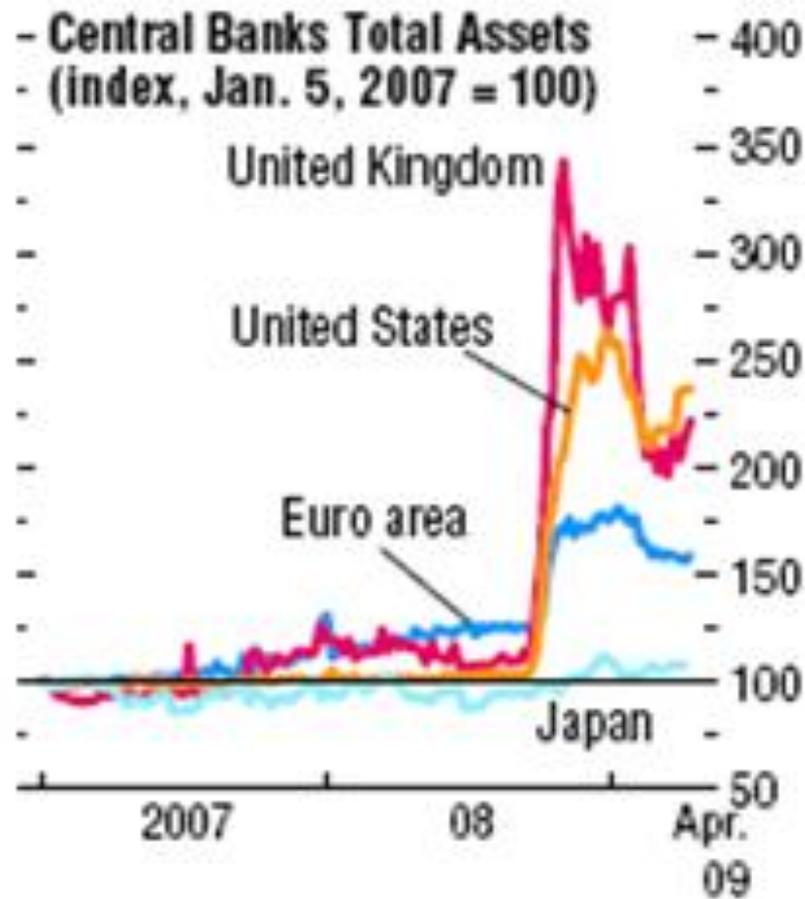
- *A policy issue*
 - A proposal (April 2008) to mop up illiquid securities from banks' balance sheets, in order to set a floor to market prices and interrupt the liquidity spiral.
 - A plan along these lines was put forward first by secretary Paulson in September 2008 (TARP reverse auctions to buy troubled assets up to US\$ 750) and then by Secretary Geithner (PPI).
 - Perhaps it was too late, but the administration eventually decided to use that money to recapitalize banks, accepting the view that the real problem was a shortage of capital.
 - But recapitalization by itself is never enough: as long as asset values keep falling, capital requirements increase: whence the complementary need of setting a floor to prices.

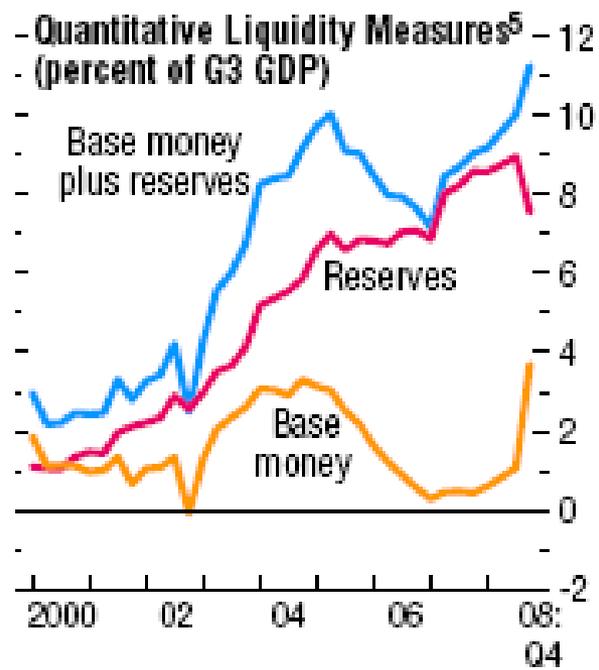
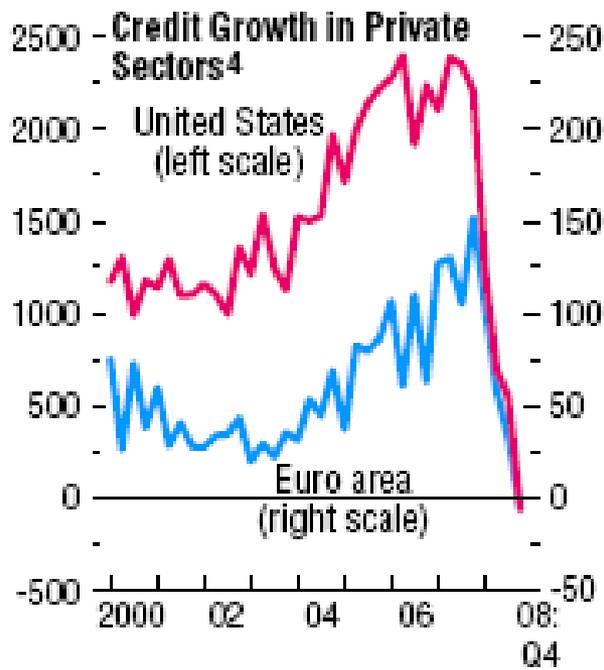
- The current situation
Stress tests in the US
Ignorance on the situation and on capital requirements in Europe
An uneasy calm: perhaps the worst is over, but still risks of further instability

7.2 Monetary policy

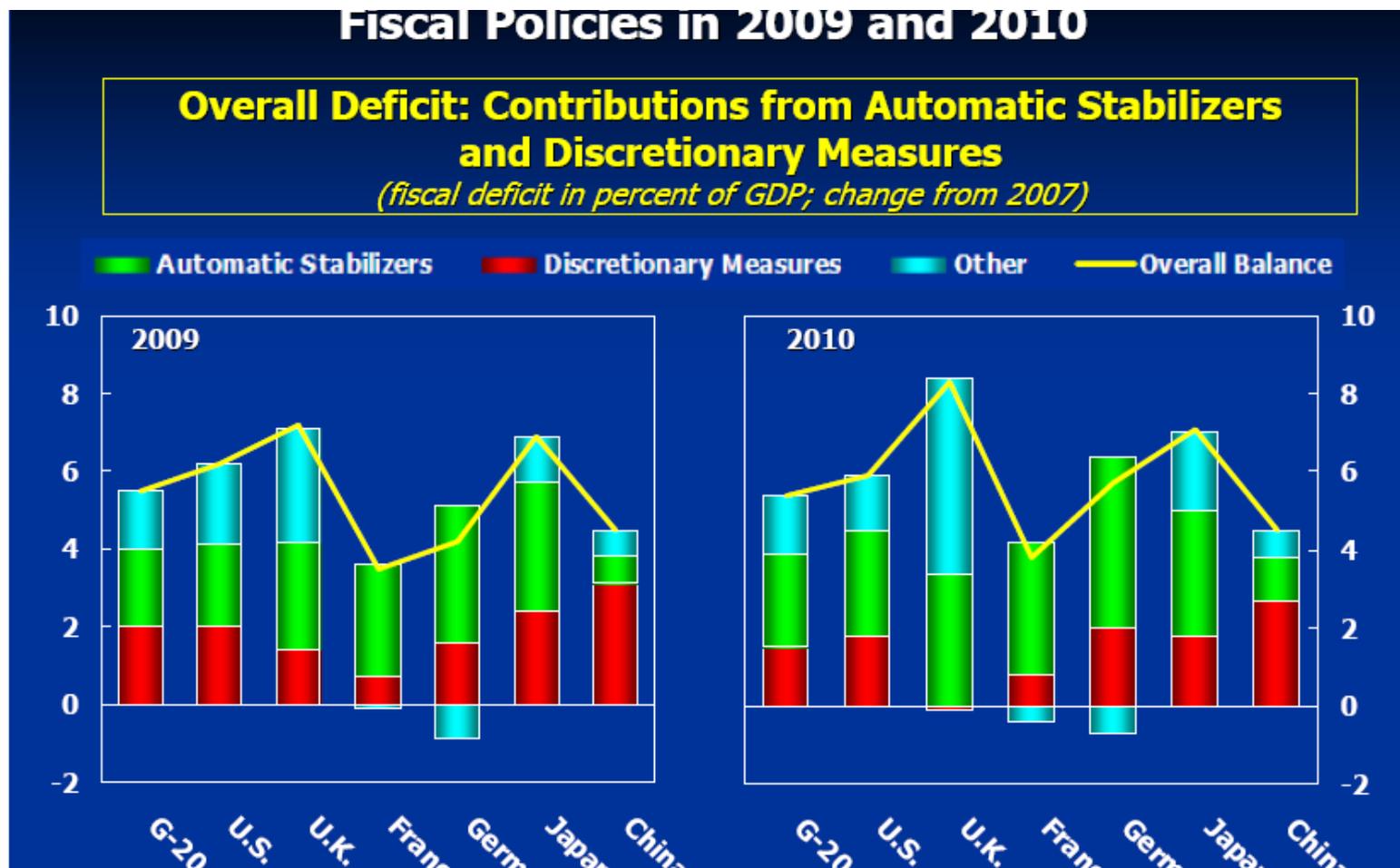
- a) Interest rates
 - b) Liquidity interventions
 - c) Quantitative easing – an alternative channel
- In spite of all the efforts falling credit: supply or demand?







7.3 Fiscal Policies



Changes in fiscal balances and government debt: % of GDP (source IMF, 2009)

	2008	2009
Fiscal balance		
G20	-1.8	-5.1
Advanced G20	-2.5	-5.5
Public Debt		
G20	9.8	12.9
Advanced G20	14.2	20.0

8 - Looking ahead

- Economic outlook uncertain:
decline in potential output
uneven recovery – much depends on emerging countries' contribution
- Three sets of policy problems:
 - Macroeconomic imbalances
 - Exit strategies *or* Mopping up
 - Reform

Whatever the new model, the transition will be long, messy and painful also because many long-term reforms are unsuited to short-term emergencies.

8.1 Reform

- By now a well known list:
 - o macro-stability regulation
 - o perimeter of regulation
 - o revise capital requirements (Basel 3?)
 - o the issue of procyclicality (capital requirements, accounting standards...)
 - o derivatives and market infrastructure
 - o etc.

The problems

Lobbies and turf wars.

Lack of a cross-border infrastructure

8.2 Imbalances and policies

A contradiction between short-term policies and long-term requirements

Indebted countries are reducing private, but not overall leverage, as they are replacing private debt with public debt

The ideal solution: reduction of savings in emerging economies

If not imbalances will persist coexisting with low growth.

8.3 The exit strategy

- Risks:
 - Debt accumulation and sustainability.
Stopping debt growth will require a sizeable fiscal turnaround. Is this compatible with recovery?
 - Huge accumulation of central bank money and liquidity, with interest rates far below the Taylor rule.
How to deal with inflationary risks without compromising credit expansion?
 - New paradigms for monetary policy?

A new world which we do not know