Chapter 8: Economic policy and the crisis

"I have noticed that many people are put off from our teaching because we know the answer to everything. Couldn't we in the interests of propaganda draw up a list of questions which appear to us completely unresolved?"

Bertolt Brecht

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Issues

- Questions about the crisis
  - Why did the crisis occur?
  - Why did the subprime debacle engulf the whole financial system?
  - Why have its consequences been so severe?
  - What has been the responsibility of economic policy?
- Has the policy response been right?
  - Short-term crisis containment (monetary / fiscal)
  - Longer-term consequences
  - Policy reforms
- What will be the consequences?
- The Queen's question: why haven't economists seen it coming?
  (and therefore are they qualified to make recommendations for the future?)

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Outline

1. A brief account of the crisis
2. What went wrong (a): the easy part
3. What went wrong (b): the harder part
4. Assessing the crisis response
5. The medium term
6. The economists and the crisis

A brief account of the crisis

Phase 1: clouds gather

Date	Events	Policy responses
2006-Summer 2007	**Localized credit concerns in the US** • Rising defaults in riskier housing mortgages • Falling prices of lower credit tiers of some credit securities	
Summer-Autumn 2007	**Initial cracks in confidence and liquidity strains** • Interbank rates rise sharply. Funding of asset-backed securities dries up • Failure of two large hedge funds • Run on British bank Northern Rock	• Central banks extend liquidity to banks through exceptional tenders • Rescue of Northern Rock
Autumn 2007- early Summer 2008	**Accumulation of losses, further liquidity strains** • Severe mark-to-market losses in trading books • Collapse of commercial paper market • Structured Investment Vehicles (SIVs) brought back on bank balance sheets • Worries about liquidity of major financial institutions	• Continued liquidity support by central banks • US government bails out investment bank Bear Stearns and sells it to JP Morgan
Summer 2008	**Intensification of losses and liquidity strains** • Mark-to-market losses and liquidity strains escalate • US agencies Fannie Mae and Freddy Mac insolvent • Funding problems of UK mortgage banks intensify	• Fannie Mae and Freddy Mac de facto nationalized in early September

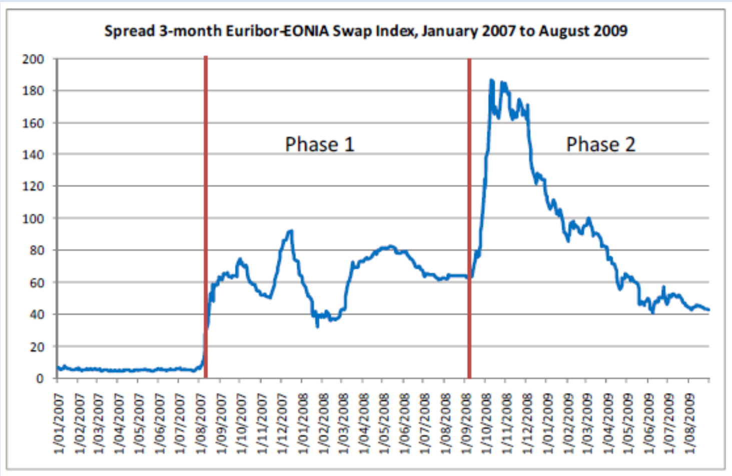
Phase 2: The perfect storm

September 2008	**Massive loss of confidence** • Bankruptcy of US investment bank Lehman Brothers • Loss of confidence that major institutions are too big to fail • Bankruptcy of Washington Mutual in the US, Bradford and Bingley in the UK, Icelandic banks • Almost total seizure of interbank money markets and short-term funding markets • Rescue of European banks Dexia and Fortis	• US government refuses to bail out investment bank Lehman Brothers. Lehman files for bankruptcy protection. • US government bail-out of insurer AIG
October 2008	**Comprehensive policy response**	• Widening of collateral range and wholesale liquidity support by central banks • Plans announced to assist banks through capital injections and funding guarantees • Explicit commitment that systemic banks will not be allowed to fail • Central banks' refinancing rates brought to zero or close to zero • Wholesale liquidity assistance to banks, distressed markets
Autumn 2008 - Spring 2009	**Crisis transmitted to real economy** • Sharp decline in industrial production and GDP • Series of financial crises in emerging Europe as capital flows suddenly stop • Collapse of world trade • Slow normalization of interbank markets	• Large-scale government stimulus • Partial recourse to "unconventional monetary policies" • Bank rescue and restructuring • International swap agreements • Major increase of IMF resources • IMF-led assistance programs in Europe

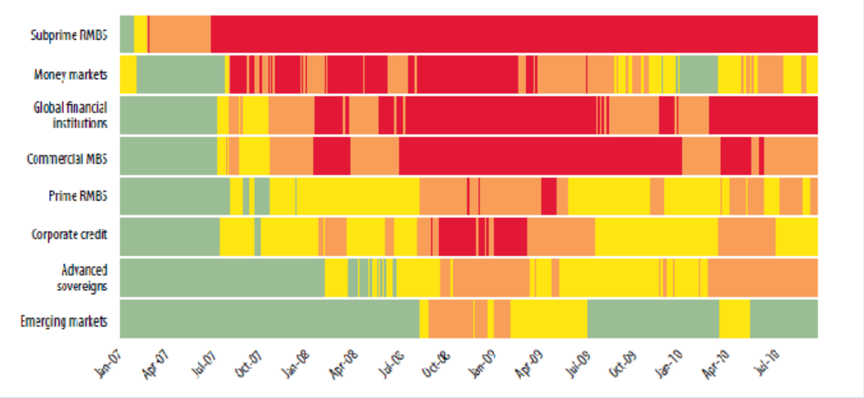
Phase 3: The European crisis

Spring 2009 – Winter 2009	**Recovery sets in** • Stabilisation and recovery of industrial production • World trade rebounds • Capital flows return to emerging countries	• Stimulus in full force • Plans for 'exit strategies' (removal of stimulus, budgetary consolidation, withdrawal of exceptional liquidity support)
2010	**Increasing divide within world economy, sovereign crises in Europe** • Sharp recovery in emerging countries • Limited recovery in advanced countries • Crises in Europe	• IMF/European assistance programmes • Slow creation of European assistance framework • US, UK turn to quantitative easing

Market temperature



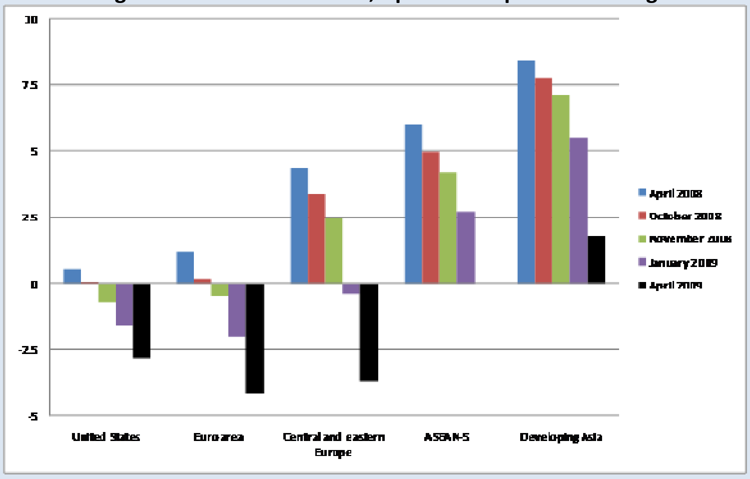
Crisis transmission across markets: The IMF heat map



Source: GFSR Oct 2010

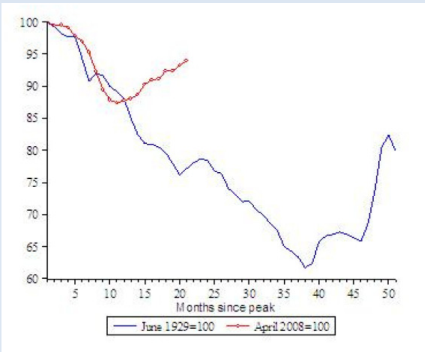
Economic consequences

IMF growth forecasts for 2009, April 2008-April 2009 vintages

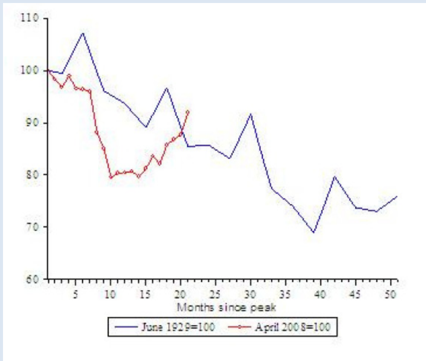


Then and now

World industrial production, 1929- and 2008-



World trade, 1929- and 2008-



Source: Eichengreen and O'Rourke 2010

What went wrong? (a) The easy part

- Some questions are easier to answer
  - Fault lines in the financial system
  - Economic vulnerabilities
  - International transmission
- Some are more difficult and may not be answered before long
  - Channels of amplification
  - Root causes

No surprise the O&D model deteriorated credit quality

- Securitisation: transformation of bank loans into marketable securities
- Emerged in the 1970s
- Pooling of bank loans was supposed to *diversify* risk
- Tranching was supposed to decompose an asset into tranches of increasing risk and return
- Resulted in the *Originate and Distribute* model of credit
- Unlimited securitisation however made lenders less wary of the individual creditworthiness of the borrower (Berndt and Gupta 2009)
- This was standard moral hazard
- (just one of many micro failures)

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A primer on securitisation

Loan (asset)	**Securities (liabilities)**		
Total loan 100	Senior tranche 80 ; 4.5% return	Mezzanine tranche 12; 6% return	Equity tranche 8; residual return
Reimbursement and return	Capital and return		
110 (50% prob)	80 (1 + 4.5%) = 83.6	12 (1 + 6%) = 12.7	13.7 (171% return)
105 (30% prob)	83.6	12.7	8.7 (8.5% return)
100 (10% prob)	83.6	12.7	3.7 (46% loss)
90 (10% prob)	83.6	11.4	0 (all capital lost)
Expected return	4.5%	4.9%	22.6%
Variance	0	0.1	21.3

Source: adapted from Creel, Mathieu and Sterdyniak (2009)

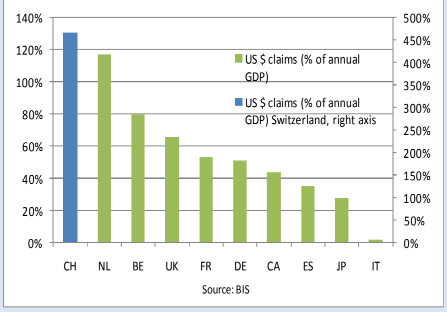
No surprise Europe was hit by the financial crisis, not Asia

Foreign Holdings of US bonds (in % of GDP)

	Mid 2007		
	Treasury	Agency	Corporate
Luxembourg	113%	84%	746%
Ireland	6%	12%	83%
Belgium	3%	7%	70%
Switzerland	9%	4%	22%
United Kingdom	2%	1%	15%
Netherlands	2%	3%	12%
Germany	1%	0%	3%
Japan	14%	5%	3%
France	1%	0%	2%
Korea	4%	7%	2%
China	14%	11%	1%
Russia	3%	9%	0%

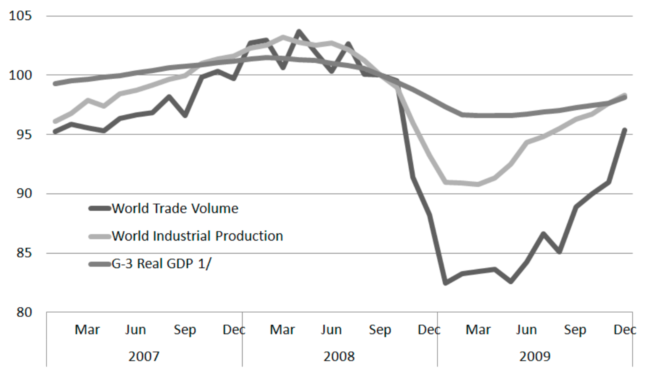
Source: U.S. portfolio surveys, Milesi-Feretti (2009), Bruegel calculations

Foreign dollar-denominated claims of the banking sector (% of annual GDP)



No surprise (with hindsight) world trade collapsed

Figure 1. World Trade, Industrial Production, and GDP: 2007-09
(Seasonally adjusted, September 2008=100)

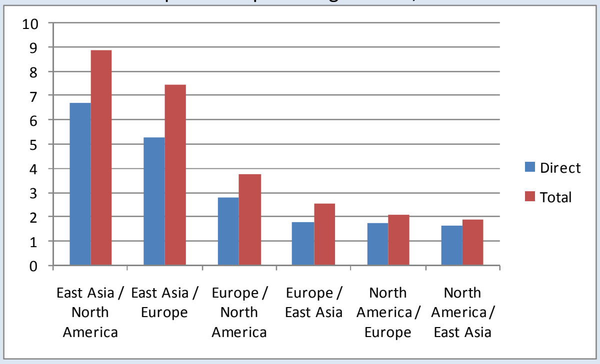


Source: CPB Netherlands Bureau for Economic Policy Analysis, and IMF WEO.
1/ GDP weighed average of US, Euro area and Japan.

Source: Gregory et al., IMF 2010

No surprise Asia was hit through trade

Bilateral trade exposure as percentage of GDP, 2006



Source: Cohen-Setton and Pisani-Ferry (2008)

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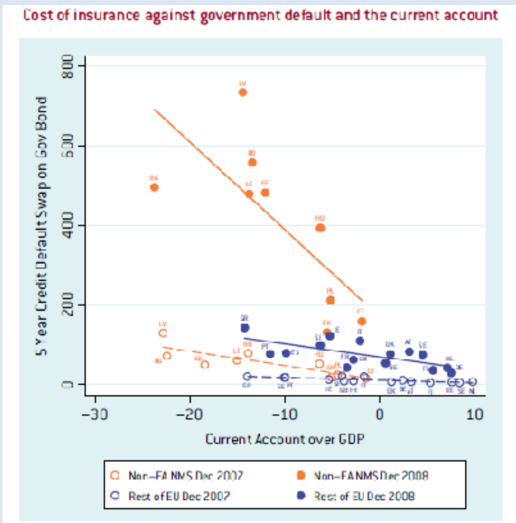
No surprise emerging markets were hit by sudden stops



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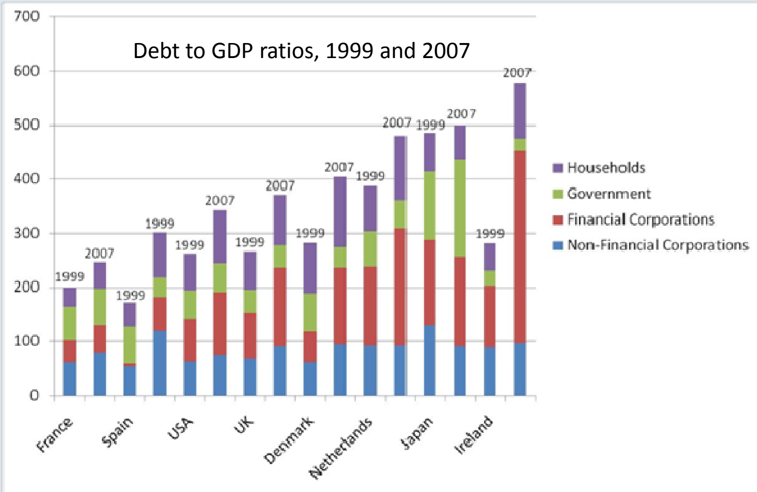
Source: Darvas and Pisani-Ferry (2008)

No surprise many countries now need to deleverage



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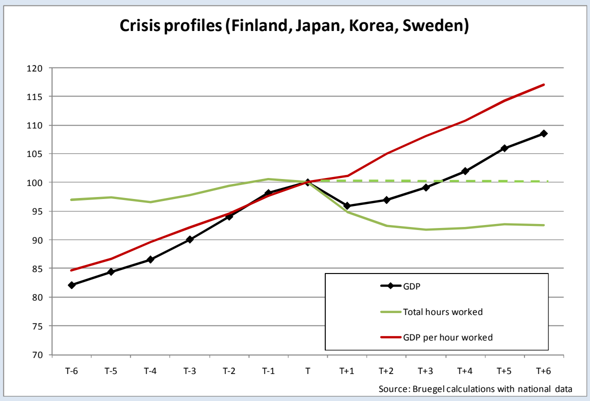
Source: Eurostat, ECB, Fed, Barclays capital

No surprise financial paralysis is having major consequences



Source: Pisani-Ferry and Van Pottelsberghe (2009)

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..and many more non-surprises

- Economists have had many useful things to say about the crisis
- But some questions are harder to answer (and they may not be answered before long: Friedman's take on the Great Depression came thirty years after, and Bernanke's fifty)

These are the interesting ones

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What went wrong (b): The harder part

a. Underlying causes of the crisis
b. Amplification mechanisms
c. Regulatory policy lessons
d. Macroeconomic policy lessons

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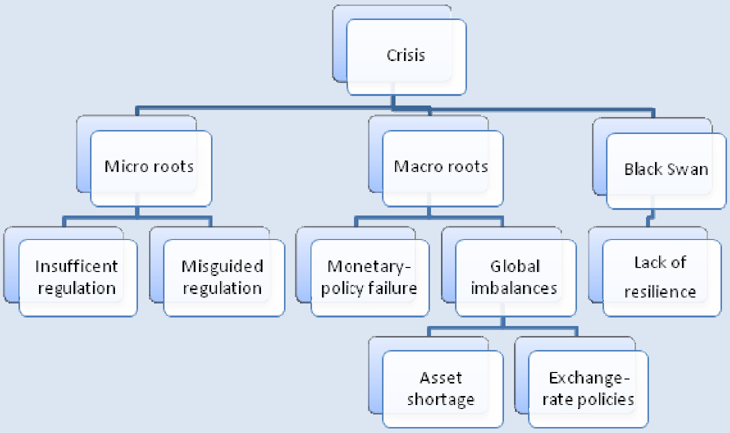
a. Underlying causes



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Pure micro roots

- Compelling evidence of micro failures
  - O&D model and moral hazard
  - SIVs
  - Conflicts of interest in the rating business
  - Compensation practices and risk-taking
  - Procyclicality of capital ratios
- What is surprising is not the complexity of mechanisms involved, rather that prevailing practices violated elementary contract theory
- Why so many failures?
  - Insufficient regulation?
  - Inadequate regulation?
  - Regulatory capture?
- Political economy remains to be written

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Is the micro story sufficient?

- Failures did not appear in the mid-2000s
- Need for macro story?

“The fundamental underlying factor which made the crisis possible was the ample liquidity and the related low interest rate conditions which prevailed globally since the mid nineties”.

Larosière report, 2009

“At the core of the crisis lay an interplay between macro-imbalances which had grown rapidly in the last ten years, and financial market developments and innovations”.

Turner review, 2009

- However more than one macro story

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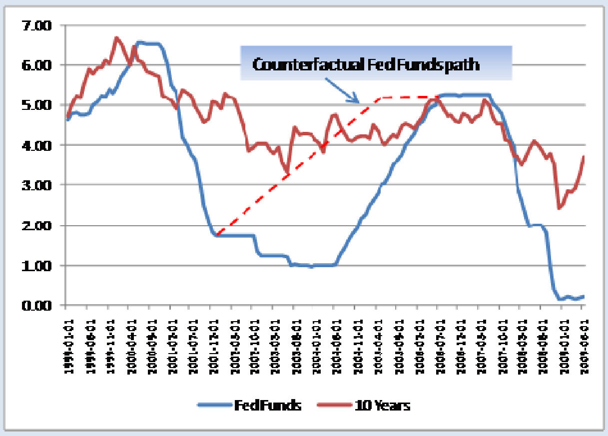
A failure of monetary policy?

The Taylor critique: is it sufficient?



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A consequence of macro imbalances?

- Imbalances thesis put forward by central bankers (Bernanke), regulators (Turner, Larosière) and academics (Caballero et al., Rajan)
- Why imbalances?
  - US leveraged demand boom
  - Global savings glut (Bernanke)
- Some empirical support for global savings glut – low interest rates link (Warnok and Warnok 2009)
- Why the global savings glut?
  - Bretton Woods 2 theory (Dooley, Folkerts-Landau and Garber) has empirical support but lacks analytical underpinnings
  - Asset shortage theory (Caballero, Fahri and Gourinchas) is intellectually appealing but lacks empirical backing (explains private inflows, not public inflows)

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b. Amplification mechanisms

- US losses on non-prime mortgage (Oct. 2008):
  $100bn = 0.7% of US GDP = 0.2% of world GDP
- US losses on MBS securities: $500bn
  US S&L losses (early 1990s): equivalent to $1700bn

"Complexity got the better of us" (Lloyd Blankfein)

Do we understand why small causes had huge effects?

- Financial sector leverage
- Contamination
- Fragility

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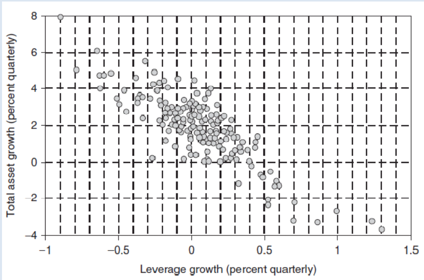
Leverage

$$l = \frac{D}{K} = \frac{D}{A - D} = \frac{1}{A/D - 1}$$

If D held constant, A and *l* are negatively correlated

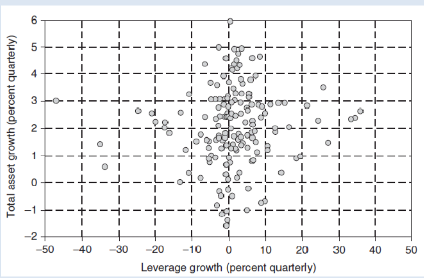
Asset growth and leverage growth, US households, 1963-2006



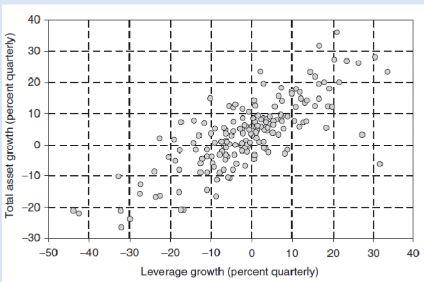
Source: Adrian and Shin (2008)

Not everybody behaves in the same way

Asset growth and leverage growth, US nonfinancial corporations, 1963-2006

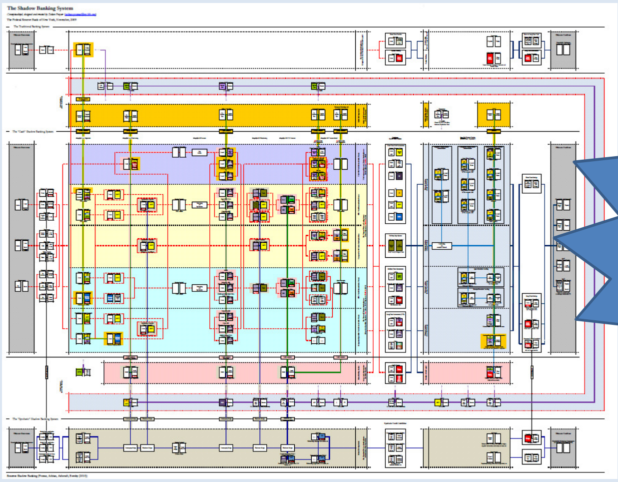


Asset growth and leverage growth, US investment banks, 1963-2006



Contamination

Gorton (2009): Crisis was a run on the shadow banking system

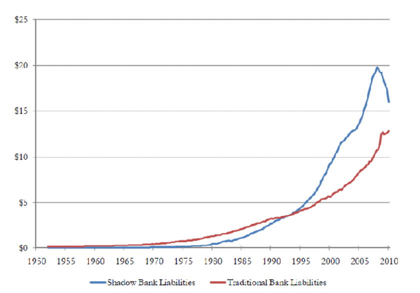


This is NOT a computer chip, this is the shadow banking system

Source: Pozsar et al. Fed New York 2010

The growth of shadow banking

Figure 1: Shadow Bank Liabilities vs. Traditional Bank Liabilities, *$ trillion*[4]



- Shadow banks (financial entities not subject to specific bank regulation) performed credit origination and transformation
-Shadow banks were highly interconnected through vertical intermediation chains
- Securitisation was a way to create 'information-insensitive debt' akin money
- However was contingent on the quality of collateral posted. When it deteriorated there was a run on shadow banks

The nature of shadow banking

Exhibit 2: The Steps, Entities and Funding Techinques Involved in Shadow Credit Intermediation - Illustrative Examples

	Function	Shadow Banks	Shadow Banks' Funding*
Step (1)	Loan Origination	Finance companies	CP, MTNs, bonds
Step (2)	Loan Warehousing	Single and multi-seller conduits	ABCP
Step (3)	ABS Issuance	SPVs, structured by broker-dealers	ABS
Step (4)	ABS Warehousing	Hybrid, TRS/repo conduits, broker-dealers' trading books	ABCP, repo
Step (5)	ABS CDO Issuance	SPVs, structured by broker-dealers	ABS CDOs, CDO-squareds
Step (6)	ABS Intermediation	LPFCs, SIVs, securities arbitrage conduits, credit hedge funds	ABCP, MTN, repo
Step (7)	Wholesale Funding	2(a)-7 MMMFs, enhanced cash funds, securities lenders, etc	$1 NAV shares (shadow bank "deposits")

*Funding types highlighted in red denote securitized funding techniques. Securitized funding techniques are *not* synonymous with secured funding.

Source: Shadow Banking (Pozsar, Adrian, Ashcraft, Boesky (2010))

Fragility: A Black Swan crisis?

"The system acts as a mutual insurance device with disturbances dispersed and dissipated. Connectivity engenders robustness. Risk-sharing – diversification – prevails.

But beyond a certain range, the system can flip the wrong side of the knife-edge. Interconnections serve as shock-amplifiers, not dampeners, as losses cascade. The system acts not as a mutual insurance device but as a mutual incendiary device.

In just about every non-financial discipline [the combination of increased complexity and reduced diversity] would have set alarm bells ringing. Based on their experience, complexity plus homogeneity did not spell stability; it spelt fragility."

Andrew Haldane (2009)

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c. Regulatory policy lessons

- Significant G20 regulatory agenda this far:
  - Closure of regulatory gaps (loopholes, havens)
  - Incentive realignment (compensations, countercyclical buffers)
  - Increase of capital adequacy ratios (Basel 3)
  - Strengthening of market infrastructures (OTC markets)
  - Emergence of macroprudential approach
- Sensible agenda
- Not yet in place, requires some more hard implementation work
- Not an easy task for large and diverse G20
  - Rules for Tatas or for Ferraris?
  - [National] politics is back in the driving seat

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Remaining issues

Unfinished agenda nationally and globally

- Bail-ins of bank creditors
  - Contingent capital
  - Statutory approach
- Structure and resilience of financial system
  - Boundaries of banking (Volcker rule and beyond)
  - Size of banks (TBTF, regulation of SIFIs)
  - Regulation of shadow banking sector
- Cross-border banking
  - Branches vs. subsidiaries
  - Supervisory responsibilities

d. Macroeconomic policy lessons

Less progress on macro front

- Slow start until Pittsburgh (no consensus on role of monetary policy, macro imbalances)
- Fast move on macroprudential approach but uncertainty about what it can deliver
  - An additional instrument? Or merely an embellished early warning system?
  - Europe / US differences
- Uncertainty over feasible degree of coordination
  - Is the G20 trying to achieve what neither the G7 nor the EU have achieved?

Further issues ahead

- Monetary policy framework
  - Science 0 – Art 1, deep consequences
  - Lean or clean debate
  - Is inflation targeting dead?
- Stress-tests for policies
  - Public sector even worse than private sector
- International rules of the game
  - Is the conversation on the international monetary regime starting again for real?

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4. Assessing the crisis response

a. The problem
b. The response
   - Direct liquidity provision
   - Bank rescue and restructuring
   - Zero interest rate policy
   - Budgetary stimulus
c. International dimensions

a. The problem

- No reliable valuation of significant portion of bank assets
- Concerns over solvency of several major banks in the context of heightened risk aversion
- Generalised rush to liquidity but contraction of interbank lending as a consequence of counterparty risk
- Banks cut off from access to liquidity facing bankruptcy risk
- Problems compounded by US Treasury decision to let Lehman Brothers fail
- All this resulting in systemic crisis, serious risk of collapse of entire financial system

The response

	Governments	Central banks	
Micro	Individual bank support - guarantees - capital injections	Liquidity support to banking system	⟵ Banking sector support
Macro	Budgetary stimulus	Zero interest rate Quantitative easing	⟵ Overall economic support

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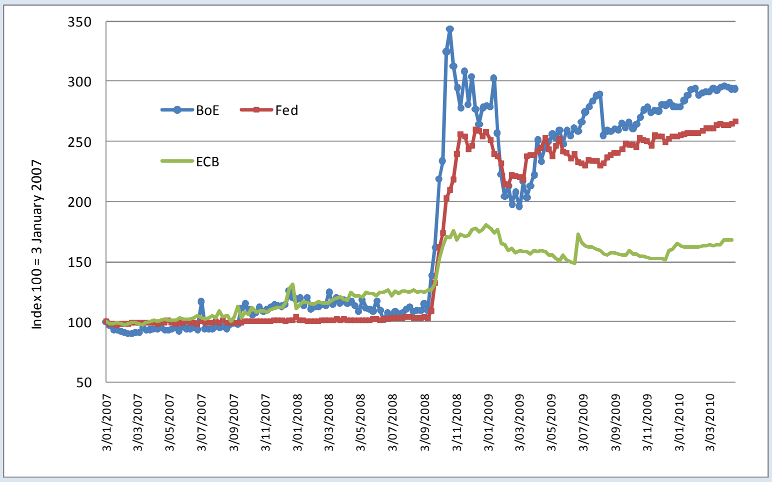
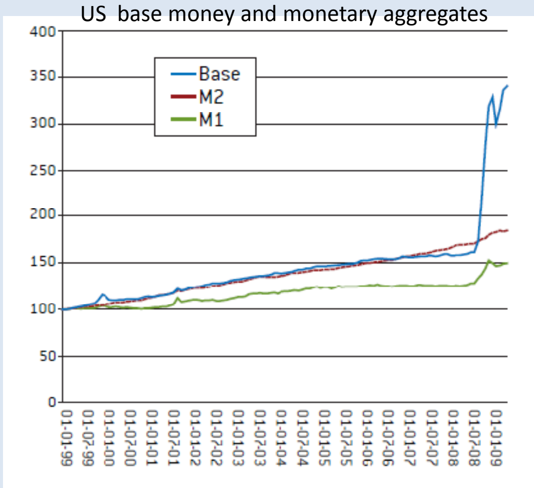
The central banks' response in a nutshell

Central bank assets, January 2007= 100



Base money vs. monetary aggregates

US base money and monetary aggregates



Source von Hagen (2009)

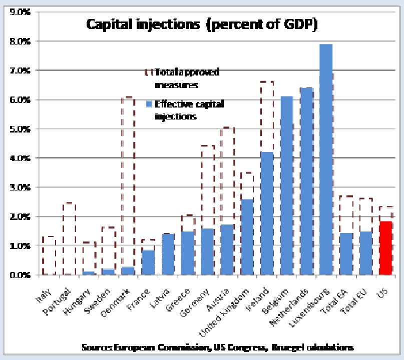
Beyond liquidity support: unconventional monetary policies at the zero bound

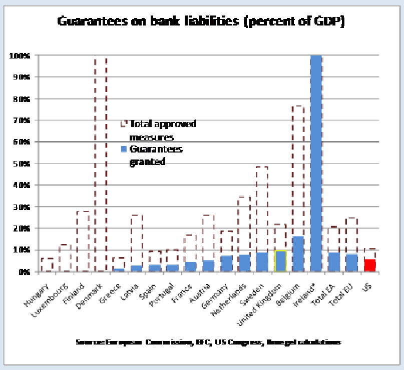
Policies undertaken by major central banks in 2007-2010

	No expansion of base money (qualitative easing)	Expansion of base money (quantitative easing)
Purchase of private assets (credit easing)	ECB	BoE, BoJ, Fed, SNB
Purchase of government bonds	ECB	BoE, BoJ, Fed
Purchase of foreign-currency assets (forex intervention)		BoJ, SNB

Source: Adapted and updated from Meier (2009)

Bank support: what has been done





Source: European Commission, US Congress, Bruegel calculations. Data refer to Sep 2008-June 2009 period

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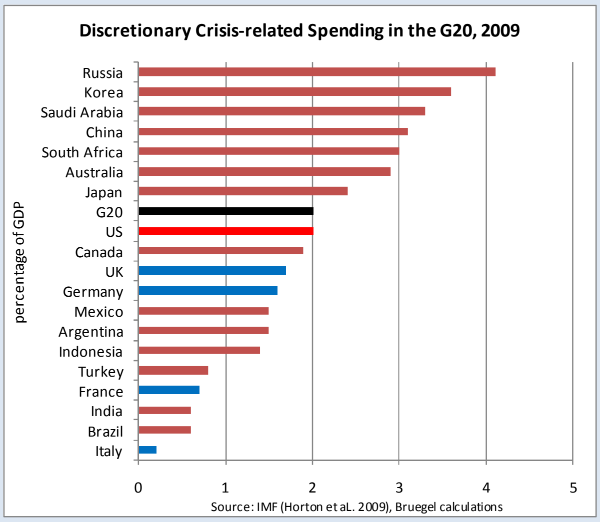
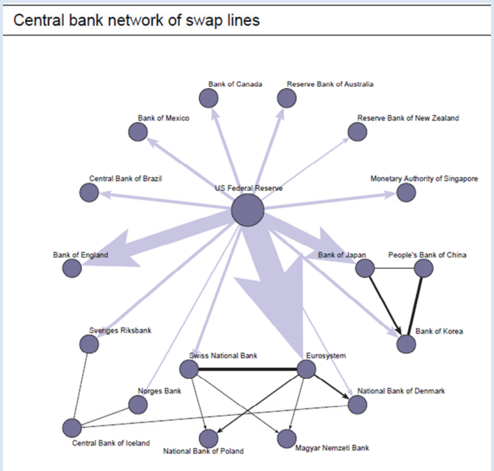
Fiscal expansion



International dimensions



5. The medium run

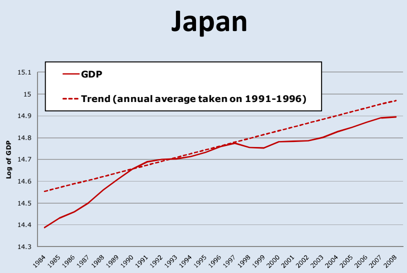
- Financial crises and potential output
- Budgetary adjustments
- Exit strategies

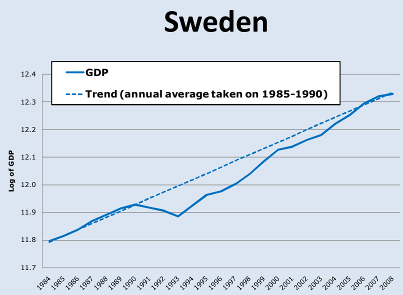
Deep crises result in permanent loss of output

- Economy resumes growth at the same rate,
- Labour productivity is stable,
- but labour input remains lower,
- and hence the growth path.

- Japanese policy: weak and ill-designed, maintained banks artificially
- Swedish policy: banks recapitalized, some nationalized, economic transformation

..but not always





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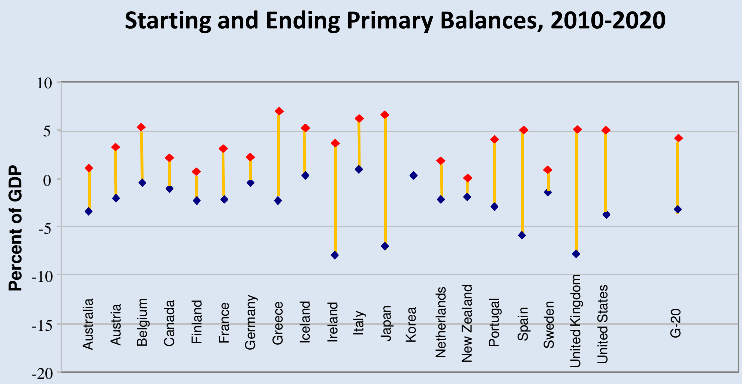
Required magnitude of budgetary adjustment (IMF estimates)



…to bring debt below 60 percent of GDP (or to pre-crisis levels) by 2030

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Exit strategies: Interdependence across instruments

Table 2:
Direct and indirect impact of exit policies on exit and other major objectives

(Direct impact in red)		Impact on exit objectives			
		Budgetary sustainability	Macro stability	Financial stability	Potential output
Exit policies	Budgetary consolidation		+	-	+/-
	Monetary tightening	-		-/+	+/-
	Withdrawal of liquidity support	+	-	-	-
	Withdrawal of government guarantees	+	-	-	-
Other policies	Bank recapitalisation and restructuring	-/+	+		+
	Macroprudential oversight	+	+		0

6. Lessons for policy economists

- Part of broader debate on the role and responsibility of the economic profession
- Specific issues:
  - Data dependence and information limitation: should we limit ourselves to working where there is light?
  - Reliance on models of limited scope: can we trade-off beauty for truth? Is there an optimal distance to beauty?
  - Cassandra's complex: can we afford warning about the coming catastrophes?
  - Risks of bias: how can we avoid capture and guarantee research integrity?

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