MPI Collective Goods

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Systemic Risk in the Financial Sector:

Does the Financial Crisis Disprove Orthodox Economics?

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„The Financial Crisis has shown“ – what precisely?

- „... that orthodox economics is deeply flawed“
  - Why precisely?
- „... that economists are incapable of understanding/predicting“
  - Did they have the relevant data?
- „... that economists are corrupt“
  - Money, „relevance“, intellectual capital?
- „... that economics is deeply ideological“
  - Economics or (some) economists?
- „... that economists are superficial“
  - Who is not?

A personal experience

- Monopolkommission XVth Biennial Report 2004:
- „Competition Policy in the Shadow of National Champions“
- Do not create a „national champion“ in banking!
- No problem of competition (yet), but
- ... a too-big-to-fail problem
- ... which can create moral hazard.
- Privileges given to the „great banks“ and moral hazard were major factors in the crisis of 1931
- Structural change and intensification of competition have reduced resilience of banks

Die
Bundesregierung

15th Biennial Report of the Monopolies Commission
2002/2003 Statement from the Federal Government
(BT Drs. 15/5819):

"A comparison with the global economic crisis of 1931 can in no way be drawn already because of the considerably changed regulative framework. This includes the statutory deposit insurance systems and the continuous oversight by the BaFin in cooperation with the German Central Bank."

Some other Experiences

- Work on „interest rate risk“ EER 1994
- Banks should provide liquidity transformation but NOT maturity transformation
- Securitize macro risks, but NOT asset-specifc risks!
- Mortgage securitization: securitize everything
- Discussion in US 1995: The problem of „bad risks“ is irrelevant because with packaging of thousands of mortgages and tranching, the law of large numbers makes „risks“ disappear.
- Deceptiveness of language – Self-Deception?
- 1997/8: „Asia“ drives contagion from Thailand to Korea (Swiss Journal 1998)

What actually happened? A brief overview over the crisis

- Buildup of risks: Subprime lending and securitization
- August 2007 – Downgrades of AAA rated securities by several grades at once
- August 2007 – Breakdown of ABCB funding of conduits and SIVs (Gorton‘s „panic of 2007“ – except that it wasn‘t repo and the SIV‘s were taken into their parents‘ balance sheets)

A brief overview over the crisis 2

- August 2007 – Capital squeeze:
  - Taking SIVs into the parent‘s balance sheets implied a capital squeeze of the parent
  - ... In some cases insolvency from writedowns on the SIVs assets
- August 2007 – September 2008: Deleveraging, asset price declines, writedowns, further fire sales
  - Not a panic but a slow implosion
- Several breakdowns of interbank markets, smoothed by central banks

A brief overview over the crisis 3

- March 2008, September 2008: Funding breakdowns at Bear Stearns and Lehman Brothers, driven by repo runs on these banks, which had been exposed to the risks of subprime assets that they had been unable to sell.
- September 2008: Post Lehman: Contractual dominos, runs on money market funds, runs by money market funds, enormous asset price declines...

Why so much systemic risk?

- Rajan, Shiller predicted real estate and subprime crisis, but NOT the rest
- Base losses from subprime probably were not much larger than base losses in Japan in the nineties.
- The difference was in global interconnectedness, fragility, and contagion
- Interconnectedness through contracts, and through asset prices and fair value accounting
- Much of it unobservable ex ante

Contagion mechanisms 1

- Contractual Interconnectedness 1: dominos ex post: Lehman Brothers – Reserve Primary
- Contractual Interconnectedness 2: Disappearance of contracting opportunities: Lehman Brothers as a market maker, money market fund investors who run, money market funds that no longer provide wholesale short-term lending (repo, ABCP)

Contagion mechanisms 2

- Information Contagion: Lehman Brothers not TBTF has implications for other investment banks; Reserve Primary breaking the buck means that other mmmf‘s may not be safe
- Hysteria Contagion? Sunspots and equilibrium multiplicity, „hypersensitivity“ to information
- Information from stock price of Lehman Brothers induced repo financiers to look more carefully at Lehman‘s balance sheet

Contagion mechanisms 3

- Asset price contagion: Fire sales depress asset prices, which leads to writedowns at banks with similar positions and possibly further fire sales by these banks ...
- Credit crunch contagion: Defensive strategy of one institution leads to a reduction in lending, which forces their borrowers to become defensive as well

Combination of Mechanisms

- Suspicions about Lehman losses in warehousing motivate short sales of shares
- Information about losses in warehousing causes repo run
- Repo run forces Lehman into insolvency
- Lehman Insolvency causes Reserve Primary to break the buck
- Run on money market funds
- Run by money market funds, breakdown of interbank funding
- Scramble for cash
- Asset price implosion

Assessing system risk exposure

- We are talking about a multiplicity of effects
- ... in a highly nonlinear system
- ... which probably has multiple equilibria
- ... in which there is no transparency about the other participants‘s positions
- ... in which the different participants‘ positions are changing all the time, and credit risks are endogenous...
- And nobody observes these developments

Assessing system risk exposure 2

- Short data series
- For a nonstationary set of phenomena
- In which hidden correlations play a central role
- Where these correlations are changing all the time
- And are endogenous...
- ...and highly contingent

Fire Sale Effects

The strength of the fire sale effect depends on

- The financial robustness and capacities of potential purchasers
- The information of potential purchasers about the assets (lemons problem)
- Expectations about future asset price developments (bubble problems)

Market Illiquidity, i.e., a need for sharp price declines to accommodate sales (if at all), can arise endogenously all of a sudden

An example

- Research 1992/3: Why are banks so exposed to interest rate risk? (EER 1994: Liquidity provision should not be combined with assumption of interest rate risk!)
- „Interest rate risk“? That is a market risk! Irrelevant for assets in the bank book! (Ten years after S&L Crisis I!) Even today ...
- „But we are not so exposed! We use asset and liability management for maturity matching! … well, almost.“ ... Using money markets and, later, swaps.

Another example

- Swiss Journal 1995: 480 institutions 1,2,3,…
- Institution i borrows at maturity i-1 months and lends at maturity i months.
- Maturity mismatch at any institution: 1 month.
- System maturity mismatch: 40 years.
- System risk is hidden in the correlations of counterparty credit risks and underlying
- Typically neglected in risk assessments
- Also neglected in regulation

Are the examples surreal?

- Repo borrowing and lending as mechanisms for blowing up short positions
- Transactions chain:
  - Investor – money market fund – structured investment vehicle (sponsored by a bank) – special purpose vehicle 1 (creation of MBS CDO) – special purpose vehicle 2 (creation of MBS) – mortgage bank – mortgage borrower – real estate
  - Delusions about maturity transformation
  - Delusions about liquidity risks – due to neglect of systems effects
  - Delusions about credit risks – perhaps insured with AIG

Delusions about maturity transformation 1

- Sachsen LB, equity < €4bn., liquidity commitments to SIVs > €40bn.
- Supervisor did not apply large-exposure rules because commitments had maturities below 365 days.
- No attention was paid to the fact that assets held by SIVs and therefore the refinancing needs of SIVs had maturities of much more than 365 days.
- (In parentheses: Margin was 10 – 30 bp!!!)

Delusions about maturity transformation 2

- Gorton: Subprime mortgage lending funded by MBS held by SPVs and banks financed by asset backed commercial paper and repo involved no maturity transformation because the subprime mortgage was effectively a short-term security.
- Contract designed in such a way that the mortgage as bound to be renegotiated after two years.
- Delusions about credit risk and its correlation with the underlying

Delusions: Adjustable rates and the problem of interest rate risk

- UK experience of late 1980s: Rate adjustments in response to high market rate of interest induce defaults and foreclosures
- High rates of interest also go along with low collateral values
- Building societies had insured credit risk with insurance companies – delusions about credit risk
- Problem: The „final" asset is long term and its service provision is fixed

Delusions: Securitization and the Problem of Interest Rate Risk

- Problem: Risk transfer involved micro risks as well as macro risks
- Pure interest rate risk transfer: maturity matching, e.g. by issuing covered bonds, with liability of the issuer
- MBS also transfer debtor specific risk
- Needed in the US because of prepayment option in mortgage contracts, which links micro and macro risks

Macro shocks and system risk exposure

- Parallel exposures to macro shocks
  - Examples: US S&Ls, Sweden, Japan, Thailand,...
- Contagion from hidden exposures to macro shocks
  - Example: Thailand, 2007 – 2009
  - Macro risks hidden in correlated counterparty credit risks: Thailand, AIG
  - ... And in firesale externalities

Macro-prudential analysis

- Tied to „cycle“.... „macro“?
- What is the STORY?
- Real economy, financial, or real assets?
- What is the role of quantitative models and indicators?
- Macro risks must be somewhere? Where are they hidden?
- Example: Interest rate risk: early 1980s, late 1980s/early 1990s, mid 2000s
- Exchange rate risks? Business cycle risks?

A note on methodology

- Models are not Theories
- Partial versus general equilibrium
- Need to look at the entire system of transactions and positions
- Need to take account of the multiplicity of contractual relations and possible correlations – highly contingent and changing from episode to episode
- Need to take account of lack of data

Experience from Competition Policy

- There is no one model that is adequate in all situations.
- Need for improvisation with respect to the combination of models that are applied in a given situation
- Interplay between tying out models and collecting and assessing data.
- No robustness in moving from one case to the next; Contingency of effects
- What is the STORY?

Failures of Economics and Economists

- Cartesianism: Treat all well constructed models as if they were empirically relevant.
  - Squam Lake Report: Banks must be funded by short-term debt because that imposes discipline
  - No empirical validation, no horse race between models (debt overhang/maturity rat race)
- Efficiency bias: „explain" what we see as a solution to some incentive/information problem
- No consciousness of the difference between models and theories and the need to CHOOSE which model fits the current story best.

Some other failures

- Ritualization of modelling: Macro
- ... Has trouble integrating asset markets into macro models (DSGE)
- ... Discrete-time with a given stationary periodization
- But the relevant „period“ for asset markets may be a second (real time) and for production and consumption a month or a year.
- Important because in „real time“, flows are unavailable to correct disequilibria in asset holdings and asset markets – e.g. in deleveraging

Economists?