



MAX-PLANCK-GESELLSCHAFT

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# The Financial Crisis and Regulatory Reform



Regulatory reform?!?

# References



- [http://www.coll.mpg.de/pdf\\_dat/2008\\_43online.pdf](http://www.coll.mpg.de/pdf_dat/2008_43online.pdf)
- [http://www.coll.mpg.de/pdf\\_dat/2010\\_31online.pdf](http://www.coll.mpg.de/pdf_dat/2010_31online.pdf)
- [http://www.coll.mpg.de/pdf\\_dat/2010\\_42online.pdf](http://www.coll.mpg.de/pdf_dat/2010_42online.pdf)

# Regulatory Reform since the Crisis



## Very little has happened

- New Organizations: EBA, ESRB, etc...
  - as if the crisis had been a problem of co-ordination among supervisors
- Rules for Hedge Funds, etc.
  - as if hedge funds had been a major factor
- Charges and taxes on financial institutions
  - as if this would finance future rescues
- Resolution: UK, D, US
  - the international problems remain unaddressed

# Regulatory Reform since the Crisis



- „Basel III“ is not providing any substantially new look = „Basel 2.01“
- No serious reconsideration of the model-based approach, leverage ratio of 33 %
- Relatively small increases in equity requirements
- Some improvements in quality of equity
- Attempts to deal with liquidity and procyclicality

# Regulatory Reform since the Crisis: CRD IV, CRR



- The Commission does not even want to fully implement Basel III
- Leverage ratio and net stable funding ratio put off for further study until 2018
- Exception for silent partnerships extended to all legal forms
- Regulation, rather than Directive: No unilateral upward deviation will be permitted under Pillar I (UK, Sweden)

# Why?



- Political Agendas: The Iraq effect: After September 11, VP Cheney „knew! That Iraq was the problem!
  - The European Commission and the need for integration
  - European governments and hedge funds
- Industry Resistance: Crisis? What Crisis?
- Political Resistance: Regulation harms competitiveness of „our banks“ ...
- ... and „our“ access to funds.

# Why?



- Lack of conceptual foundations for reform:
  - No serious post mortem on the role of regulation – or its absence – in the years before the crisis. What would have been different if...
- Political Economy of banking regulation: Banks are where the money is
  - Zero risk weights for Greek government bonds and German municipal loans...
- If we cannot get at the printing press directly, we can use bank loans and then use the printing press to bail out banks

# Crisis? What Crisis?



- Ups and downs as part of the dynamics of capitalism
- Securitization in principle a good idea – 2006/2007 was just a matter of bad luck
- Creation of tradable (liquid) debt is also a good idea
- ... unfortunately susceptible to the risk of a run
- ... which we got in 2007
- To eliminate such risks, we need more subsidies and bail-out facilities!!???



# Critique



- Subprime securitization had flaws that should have been recognized ex ante.
- There was a serious misallocation of funds and of real resources.
- There was also a misallocation of risks: Long term assets were held by banking institutions rather than life insurers or pension funds.
- The problem was of insolvency, not just illiquidity.
- Economists are susceptible to corruption ... intellectually

# Summary Assessment



- Proposition 1: The extent of the crisis was due to flaws in system architecture
- Proposition 2: The prevailing system of regulation is contributing to these flaws and needs to be substantially reformed.
- Proposition 3: Risk weighting in capital regulation is a major problem, enhancing procyclicality, lack of capital, interconnectivity and distortions in capital allocation (Basel III provides no progress!!)

# Puzzles



- Market value losses on subprime were too large to be explained by expected losses on the debt service of mortgages.
- Market value losses on subprime were too small to explain the tsunami that has brought down a global financial system with more than 80.000 bn. \$ in bank assets.

# Solution



- The crisis has not one cause, but several
- Two triggers:
  - Subprime mortgage crisis
  - Breakdown of excessive maturity transformation through conduits etc.
- Flawed financial system architecture generating a downward spiral based on the interplay of asset price declines, fair-value accounting, inadequacy of bank capital, deleveraging, asset price declines....

# Components of Crisis



- Buildup of positions: Real-estate finance (bubbles), subprime mortgage backed securities, government debt
- Fragility of financing structures: Maturity transformation, liquidity transformation, leverage
- System feedback effects: Fair value accounting, deleveraging, asset pricing

# Fragility of Banks and the Crisis



- Examples:
  - Sächsische Landesbank: Commitments to Conduits and SIVs amounting to more than 40 bn. EUR; conduits holding ABS and ABS CDOs with maturities in excess of 5 years, refinanced by commercial paper. Own equity less than 4 bn. EUR.
  - UBS Investment Bank holds Super Senior Tranches of MBS CDOs in its own portfolio, hedging credit risk through CDS with monoline insurers, without capital backing. UBS has equity of 40 bn. CHF on a balance sheet of 1600 bn. CHF

# Fragility of Banks and the Crisis



- Acharya, Schnabl, Suarez:
  - Conduits and SIVs earned 20 – 30 basis points above refinancing costs
  - 8 % equity backing would have required 40 basis points (8 % times 500 basis points)
  - These operations were performed only because no equity was attributed to these assets.
- Assessment:
  - Why was no account taken of risk?
  - What investment criteria did these bankers use?

# The Twin Shocks of August 2007



- Rating Downgrades for MBS, MBS CDOs etc., in part by three grades at once
- Price declines of MBS, MBS CDOs etc.
- Breakdown of Refinancing for Conduits and SIVs (ca. 1.000 bn. \$ in MBS, MBS CDOs etc.)
- Liquidity assistance promises of sponsoring banks provide a less than perfect substitute (unwilling, unable to keep these promises...)
- ... require equity backing!
- Twin Shocks: Quality of MBS, Extent of Maturity Transformation through Conduits and SIVs



# System implosion August 2007 – October 2008



- Price declines in panicky markets
- Fair Value Accounting
- Lack of Equity Capital:
  - practically no „free“ equity capital
  - too little equity capital altogether
- Deleveraging
- Solvency Problems

# Insufficiency of Bank Equity I



- Practically no “Free” equity
- Write-Downs induce an immediate need for corrective action
- Corrective Actions:
  - Recapitalization
  - Deleveraging
- Deleveraging enhances sales pressures in markets, lowers market prices even further
- Induces further write-downs at other banks, etc.

# Insufficiency of Bank Equity II



- With equity amounting to 1 - 3 % of unweighted assets, two problems arise:
- Multipliers for Deleveraging are exorbitant
- There quickly are problems with solvency
- Doubts about solvency endanger refinancing
- „Runs“ Problem
- Example: Bear Stearns, Lehman Brothers

# Deficits of Regulation and Supervision



- Intransparency about system exposure to risk from maturity transformation by conduits, SIVs, etc., due to the lack of regulation of conduits, SIVs, hedge funds, investment banks
- Admission of excessive maturity transformation, liquidity assistance promises
- Insufficiency of bank equity under the model based approach
- Procyclicality of deleveraging induced by regulation

# Reasons for these Deficits 1



- Anti-regulation stance of governments, ideology of “national champions”
- Fear of regulators to invoke the second pillar of Basel in order to forbid excessive maturity transformation etc.
- Political Economy (German Landesbanken)

# Reasons for these Deficits 2



- Investor Protection versus System Protection: Hedge Funds, Investment Banks, SIVs went unregulated because there was no need to protect investors – the need to protect the system was not seen.
- A lack of conceptual foundations for capital regulation had contributed to a process of capture of regulation and for the flaws in implementation both of which contributed to the insufficiency of bank equity.

# Prehistory



- 1988 Basel I: 8 % equity requirement for (ordinary) credit risks
- 1993: First Proposal for equity requirements for market risks (Standard approach)
- 1993-1995: Regulatory Capture by Sophistication: "We understand much more than you do about risk management and risk control"
- 1995: Revised Proposal for equity requirements for market risks (Standard Approach + model based approach)
- 1996: Amendment of Basel I for Market risks
- 1996 – 2005: Discussion about Basel II

# Critique of the Model Based Approach 1



- Model Based „Economizing on equity capital“ has been a reason why solvency became an issue so quickly
- 10 % “Core Capital” or 1 – 3 % of the balance sheet – which number is more meaningful?
- ... in the crisis, we have seen the realization of risks that had not been accounted for in the models!



# Critique of the Model Based Approach 2



- ... Correlations of MBS due to a common dependence on the same underlying factors (Interest Rates, Real Estate Prices)
- ... Correlations between counterparty credit risks and underlying risks in hedge contracts
- ... system risk exposure due to excessive maturity transformation and leveraging at investment banks, conduits, etc.

# Critique of the Model Based Approach 3



- These deficits are fundamental:
- Time series are nonstationary, some of them much too short to provide a reliable basis for statistical analysis (contrast the papers of the Basel Committee on Backtesting!)
- Credit risks are endogenous
- ... and change over time ... unobservably
- Correlations of underlying and counterparty credit risk can hardly be measured
- Incentives for better models are missing

# Conceptual Deficits Facilitate Capture



- "... surely you agree that a system of capital regulation with risk calibration is better than one without"
- Conceptual deficits induce helplessness in the face of such statements
- If only I knew what capital regulation is supposed to be doing!!!

# Conceptual Deficits of Bank Capital Regulation



## Four Deficits:

- The objectives of capital regulation are not specified
- ... nor is there an account of how the regulation will serve those objectives
- Neglect of the dynamics of regulation
- Neglect of systemic interdependence

# Conceptual Deficits of Bank Capital Regulation: Objectives



What is the purpose of capital regulation?

- Equity as a buffer against losses
- Equity as an incentive mechanism to reduce gambling for resurrection
- Equity requirements as a basis for supervisory intervention in advance of an insolvency

# Conceptual Deficits of Bank Capital Regulation: Objectives



- All three aims are usually mentioned, but no account is given of their implications for appropriate regulation
- Conflicts and tradeoffs are not discussed
- Example: Objective 3 requires a system of regulation that is not vulnerable to manipulation inducing delay, perhaps also a calibration according to the short-term disposability of assets when an intervention takes place (quite different from risk-calibration)

# Conceptual Deficits of Bank Capital Regulation: Objectives



- BCBS 180:
- Regulatory Minimum: The amount of capital a bank needs to be regarded as viable by creditors and counterparties
- Buffer: The amount needed to withstand shocks so that they do not go below the regulatory minimum.
- No notion of externalities
- No notion of endogeneity of creditor attitudes

# Conceptual Deficits: Dynamics



- All theoretical arguments come from a two period model with financing and investment decisions in period 1 and returns coming due in period 2.
- In such a model, equity capital is a buffer and reduces incentives to gamble
- What are the effects of capital regulation in a multi-period world?



# Conceptual Deficits: Dynamics



- In a multi-period world, capital requirements are not just imposed *ex ante*, but also *ex interim*, after the bank has acquired a history and when it is sitting on previously acquired assets.
- How is the regulation applied *ex interim*? E.g. what are the dynamics of reaction to intervening losses?
- Practice: Requirements must be satisfied at each instant!

# Conceptual Deficits: Dynamics



- Paradox of Regulation: Regulatory capital does not serve as a buffer because it is needed to satisfy the regulator.
- Without “free” capital, one must react to losses by recapitalizing or deleveraging
- In malfunctioning markets, sales of assets below discounted present values of returns harms solvency!
- Why is there no discussion about the dynamics of adjustment after losses ?

# Conceptual Deficits: Dynamics



- Paradox of Regulation: In an intertemporal setting, the anticipation of future capital requirements can enhance risk taking incentives
  - Heads, I win and have additional equity and can grant 12.5 times (50 times?) that many more loans
  - Tails, the taxpayer/depositor loses!

# Conceptual Deficits: Systemic Interdependence



- Banking Regulation and Supervision neglect systemic interdependence.
- Focus on the individual institution (the target of the underlying legal norms)
- However: In the past twenty years there have been many instances where all banks satisfied regulatory requirements and suddenly there was a banking crisis!

# Conceptual Deficits: Systemic Interdependence



- The notion that you can control solvency risks by looking at each individual institution in isolation neglects the problems that arise from correlations of underlying and counterparty risks, from system risk exposure to the behaviour of others, finally also the problems that stem from the insufficient empirical basis for measuring correlations

# Conceptual Deficits: Systemic Interdependence



- When considering corrective actions, system interdependence is also neglected
- If all banks have problems at the same time, e.g. because of common exposure to an interest rate shock, corrective actions occur simultaneously and must affect market prices
- Deleveraging depresses market prices and has negative effects on the solvency of other institutions!

# Systemic Risk and Macro Risk



- Systemic Risk:
  - Risk to the system due to common exposure?
  - Risk to the economy from the system?
  - Risk to the system from systemic interdependence?
- Systemic Interdependence:
  - Information contagion
  - Dominos through contracts
  - Dominos through fire sale effects on asset prices
  - Loss of market making functions

# Systemic Risk and Macro Risk



- Hedging as a way of moving risks elsewhere
- ...where?
- .... to possibly get them back through correlated counterparty risks!
  
- Examples: UK interest rates 1990, Thailand 1997, AIG/monoliners 2008
- Enhancing exposure of others?
- Hiding risks in correlations?



# Conceptual Deficits: Systemic Interdependence



- Proposals to add a macroprudential element to capital regulation go in the right direction but should not be based on illusions about our ability to measure
- As yet there is no theoretical or empirical analysis of what the effects of the regulation are or will be
- Such an analysis requires concepts of general-equilibrium theory (not just risk management methods!) in order to encompass changes in markets.

# Co-Cos?



- The preceding comments all apply to co-co regulation just as they do to equity regulation
- Dynamics of implementation: When conversion has taken place, where do new co-cos come from?
- Systemic effects: What about the repercussions on institutions holding co-cos?
- N.B.: Owners of hybrids were bailed out in the crisis!!

# Conceptual Deficits: Systemic Interdependence



- "... surely you agree that a system of capital regulation with risk calibration is better than one without"
- Lecture BoE 2000: "Of course the proposed system for Basel II is much better than Basel I .... just as the Soviet Union's five-year plans under Breshnev were much better than under Stalin!"

# A Crazy (?) Suggestion



- Why not 20 - 30 % equity requirement - unweighted?
- Fewer incentives to enhance connectivity!
- No solvency problems! No Interbank Runs!
- Deleveraging Multipliers of 3,3 as opposed to 30, 40 or 70
- This would truly be Basel III

# Should Banks be Required to have more Equity Finance?



- Proposals to raise equity requirements have met with fierce resistance from the industry.
- Higher capital requirements, they say, will induce a credit crunch.
- Funding costs will go up.
- Bank lending will go down.
  - (... in traditional loans or in subprime mortgages and other trading-book-related operations?)
- Everything will move to the shadow-banking system

# Fallacies



- Some arguments are simply fallacious:
  - Higher equity requirements will raise banks' funding costs because equity requires a higher ROE than debt: Higher equity implies that, per EUR invested, equity is less risky; required ROE *must* go down!
  - High equity requirements harm shareholders – and society (?) – because ROE goes down;
    - if ROE goes down because required risk premia go down, this is false; equity is more attractive!
    - if ROE goes down because the tax (and bailout subsidy) advantage of debt is lost, this is a private, but not a social cost.

# Myths



- Because of Myers-Majluf/Lemons effects, new equity finance is costly.
- ... or is it because of a debt overhang effect?
- New equity that improves creditors' prospects may be expensive privately – and cheap socially!
- Refusal of dilution can be a form of gambling for resurrection!

# Governance arguments



- “Capital requirements are not free. The disciplining effect of short-term debt, for example, makes management more productive. Capital requirements that lean against short-term debt push banks toward other forms of financing that may allow managers to be more lax.”

(Squam Lake Report, French et al. 2010, 44)



# The Myth of Market Discipline



- Market discipline by debt – Calomiris :  
Observed contracting is efficient... or is it the result of contracting dynamics in the absence of commitment?
- Debt is informationally undemanding – but debt holders are assumed to invest in information to discipline bank management
- Market discipline by equity – stronger than market discipline by debt? Biased in favour of risk taking?

# Analytical Issues 1



- Are there reasons to believe that unregulated private contracting leads to excessive short-term debt finance?
  - Overconfidence effects of financiers
  - Neglect of moral-hazard externality of additional debt on incumbent debt – repo borrowing versus depositors!

# Analytical Issues 2



- Are there reasons to believe that systems involving „discipline“ through runs induce excess fragility in the sense that reactions to a negative shock do not represent an efficient use of the information about the shock?
  - Diamond – Dybvig 1983
  - Calomiris – Kahn 1991 (!)
  - Morris – Shin 1998, Goldstein - Pauzner 2006, Rochet – Vives 2004
  - C. Hellwig 2002

# Analytical Issues 3



- How does „market discipline“ work when we have external equity as well as short-term debt?
  - Angeletos – Werning 2006...
  - Who invests in information? The Shareholders/Stock Market Analysts? Or the Debtholders?

# The Threat of the Shadow Banking System



- The most dangerous part of the shadow banking system consists of affiliates of regulated banks – supervise relations of the regulated bank to its affiliates and the problem disappears
- Independent shadow banking institutions have not played a significant role in the crisis
- ... they may in the future, which is why they should be subjected to reporting requirements

# The Competitiveness Argument



- „We cannot regulate this because the others are not doing it and our banks would be at a competitive disadvantage“
- Competitive disadvantage may be good for the taxpayer: UBS – Switzerland, Landesbanken – Germany
- Competitiveness that is based on government subsidies is undesirable
- Bailout funds are subsidies ... see the interest savings of too-big-to-fail institutions

# The Competitiveness Argument



- Competitiveness of a country in *all* sectors is impossible (Ricardo)
- The question is which sectors to devote its resources to
- Ordinarily, this is handled by input markets: Competitive success of firms in one sector in world markets induces them to bid up input prices (wages); this makes life harder for other firms/sectors.

# The Competitiveness Argument



- Is it really efficient to have all those physicists computing models for banks (without understanding the economics) rather than developing new nano-technology or new IT software?
- We do not know the answer and would like to think that the market system does.
- But the market system can only do so if choices are not distorted by government subsidies (tax savings, bail-out subsidies).



# Concluding Question



- Why is it that a community which should have been completely discredited by the experience of the past three years is still dominating political discussion about regulation and the reform of regulation?