

A decorative graphic on the left side of the slide, consisting of a network of light blue lines and circles, resembling a circuit board or a network diagram. The lines are vertical and horizontal, with small circles at various points, creating a grid-like structure that tapers towards the right.

UNDERSTANDING THE SHIFT FROM MICRO TO MACRO -PRUDENTIAL THINKING: A DISCURSIVE NETWORK ANALYSIS

MATTHIAS THIEMANN

REGULATORY THINKING AND THE FINANCIAL CRISIS

- Pre-crisis: (self-)regulatory consensus regarding financial markets based upon the assumption of superior information processing capacities of market agents and the ensuing market discipline; focus on controlling the risk-taking of individual entities based on private risk management (microprudential approach): regulation as individual risk management
- Post-crisis: empowerment of macroprudential regulatory approach that challenges prior assumption and advocates a systemic view on risks, which are understood as endogenous (outcome of collective behavior)
- Financialization in reverse?

MAIN TENETS OF BASEL II

- Private agents can best calculate the risks they engage in, using modern statistical techniques: risk forecasting models: they seek to harmonize it, based on rational expectations models, there is one correct model
- Need for complete markets in order to optimize financial market risk gestation: not less, but more markets are needed
- Liquidity as a problem is neglected
- Intra-bank conflicts between bank managers and depositors/shareholders is the focus
- Pure micro-prudential approach: focus on individual institutions: can they withstand an external shock?

MAIN STREAM RISK MANAGEMENT TECHNIQUES: THE WORLD VIEW

- MS Risk Management techniques are interwoven with the rational expectations hypothesis
- Rational agents can obtain the true model of the world by inferring from observed prices the underlying variables driving these prices and then act upon it
- The world is one of ergodicity: past events predict future events (contrast with Post-Keynesianism)
- Regulators encourage regulated to find that model

MAIN STREAM RISK MANAGEMENT TECHNIQUES AND THE NEED FOR DIVERSITY

- If all agents in the financial system use the same measurement techniques and are subject to the same regulations, they will behave in the same way: liquidity black holes
- Yet, current risk-sensitive regulation is expanded to cover insurers (Solvency II), unifying the outlook of banks and insurers
- Furthermore, ECB and BCBS are troubled by model inconsistencies among banks and seek to impose homogeneity
- Thus, rather than increasing diversity, current regulation decreases diversity of actors' views and outlook (Danielsson 2013, Persaud 2015)

PROBLEM WITH MS RISK MODELLING TECHNIQUES

- Lack of data on financial crises.
- Value at Risk The stochastic assumptions governing market prices on which the models are based are likely to fail when an economy goes from a calm period to a distress period: The Misbehavior of Markets (Mandelbrot and Hudson 2003) vs. Value at Risk models
- The assumption that risk is exogenous:
- “Each and every statistical model in common use is founded on risk being exogenous, in other words, the assumption that extreme events arrive to the markets from the outside, like an asteroid would, where the behavior of market participants has nothing to do with the crisis event. ”
- Vs. the use of these models by market participants creating a changing reality: reflexivity/ performativity of models

CRISIS AS A MINSKY MOMENT

- Hyman Minsky's financial instability hypothesis: stability breeds instability
- Pre-crisis: the great moderation, low volatility, low inflation
- Main stream assumption: Inflation targeting as well as sophisticated risk management techniques (including securitization, derivatives etc.) made the world a safer place
- Actual fact: build-up of risks that were not monitored and then erupted

AS A REACTION TO THE CRISIS

- The macro-prudential approach to regulation gains increasing acceptance (2008):
- need to go beyond the prudential regulation of single institutions and to focus on the development of the entire system
- cross-sectional as well as temporal dimension
- The work on Basel III seeks to incorporate first parts of macroprudential approach
- FSB receives the task from G20 to come up with further measures

MACROPRUDENTIAL REGULATION

- What it is?
- What is the role of economics?
- What does it mean for economics?

MAIN TENETS OF MACROPRUDENTIAL REGULATION

- Focus on systemic risks rather than individual risks
- Liquidity is a major problem in the financial system
- Fallacy of composition: what is rational for individual banks is not necessarily rational for the system as a whole: making individual banks safe is not sufficient for the entire system
- The main risk to the financial system is endogenous, not exogenous: feedback loops and amplification mechanisms (herding, fire sales, contagion)
- The system undergoes patterns of boom and bust, it is pro-cyclical: the idea of financial cycles

The macro- and microprudential perspectives compared

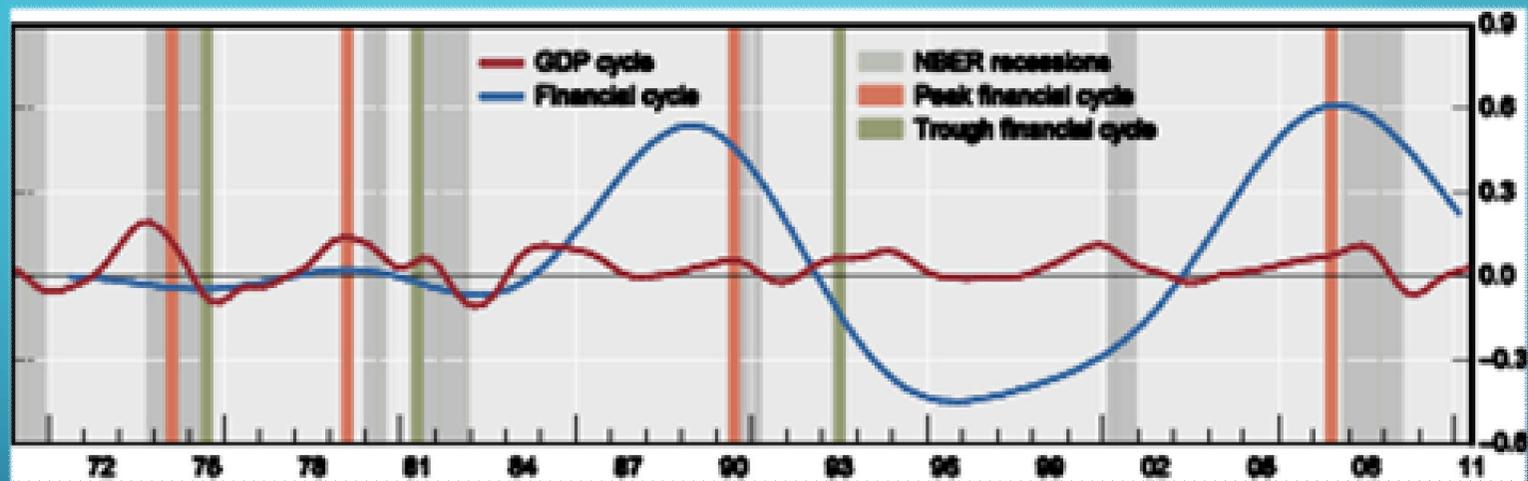
	Macroprudential	Microprudential
Proximate objective	limit financial system-wide distress	limit distress of individual institutions
Ultimate objective	avoid output (GDP) costs	consumer (investor/depositor) protection
Characterisation of risk	Seen as dependent on collective behaviour ("endogenous")	Seen as independent of individual agents' behaviour ("exogenous")
Correlations and common exposures across institutions	important	irrelevant
Calibration of prudential controls	in terms of system-wide risk; top-down	in terms of risks of individual institutions; bottom-up

Source: Borio (2003)

THE FINANCIAL CYCLE

Graph 1

The financial and business cycles in the United States



Orange and green bars indicate peaks and troughs of the financial cycle measured by the combined behaviour of the component series (credit, the credit to GDP ratio and house prices) using the turning-point method. The blue line traces the financial cycle measured as the average of the medium-term cycle in the component series using frequency-based filters. The red line traces the GDP cycle identified by the traditional shorter-term frequency filter used to measure the business cycle.

Source: Drehmann et al (2012).

A PARADIGM SHIFT?

- Some analysts speak of a mere rhetorical device (Helleiner 2014)
- Baker (2013a, b, c, 2015) speaks of an ideational paradigm shift, a Gestaltflip of the thinking about financial regulation, which however still lacks the policy tools and setting
- Operationalizing this new approach entailed the challenge for regulators to identify, measure and regulate sources of systemic risk in an appropriate manner,
 - generating data,
 - identifying metrics (indicators) and
 - trigger points for regulatory action

THE CHALLENGE OF SYSTEMIC RISK

- At the center of the macroprudential paradigm is the idea to control systemic risk, rather than individual risk (fallacy of composition)
- But: what does systemic risk stand for? SR has been an acknowledged motivation for financial regulation for decades (e.g. Herring and Litan 1994, 80). Pre-crisis, however, governing it was supposed to be achieved by ensuring the risk-taking behavior of the individual. This has changed, focusing on endogenous feedback loops and amplification
- a focus on the cross-sectional aspect of systemic risk (contagion, interconnectedness and moral hazard, goal of increasing resilience)
- There is a focus on the financial cycle (endogenous build up of systemic risk over time, goal of smoothing the cycle)

MACROPRUDENTIAL PARADIGM AS A

- Challenge to the neoliberal consensus regarding the epistemic authority of the market regarding the pricing of risk, justifying a statist interventionist program → state can know and intervene to improve financial market outcomes
- Challenge to economists' thinking about financial markets: Financial Markets are not self-equilibrating and socially efficient, they tend to operate in a boom and bust cycle and are fragile (threaten the economy)
- These two challenges come together in the production of new „policy devices“ (Hirschman and Popp Berman 2014) that allow regulators to see, know and regulate systemic risks

MY PROJECT

- 2 Research Questions: How does this alternative idea set interact with institutional settings and interest politics in its process of implementation? Which contributions do economics and economic thinking make in its implementation?
- Unit of Analysis: Trace the (attempted) implementation of macro-prudential regulation in banking and shadow banking from measurement (cognitive framework) to policy tool (focus today on CCB and Anti-cyclical haircuts)
- Method and Data: Process tracing, based on semi-structured expert interviews with central bankers involved in calibrating these measures (n=14) as well as documentary analysis, grounded theory, citation network analysis

CONTENTION

- In the process of policy implementation, the two-pronged goals of the macroprudential agenda are reduced to one: from fighting the cycle and increasing structural resilience to resilience only
- In other words, this means that reforms are seeking to increase the resilience of the system to financial shocks should they occur, but they do not seek to prevent the build-up of systemic risk in the financial cycle over time
- How can this be explained?

METHOD AND DATA

- Both samples were collected in May, 2014. In both samples, we refer to each resource by using the authors' family name, date of publication and the first few words from the title. The number in brackets beside each resource refers to the citations received by the relevant resource as collected in May, 2014. Scholarly works using the historical approach are highlighted in green, those using practitioners' discourse are highlighted in red, and those using informal theoretical analysis are highlighted in black. Finally, scholarly works using quantitative/formal methods, whether theoretical or empirical are highlighted in blue.

DIFFERENT SOURCES OF KNOWLEDGE AND DIFFERENT MODES OF REASONING AND COMMUNICATION

- Reviewing the 60 contribution, we realized that there are different sources of knowledge and different modes of reasoning and communication
- There are practitioners, historians informal theoreticians and formal analysts (model builders)
- Practitioners relate naturally to systemic risk: it is their everyday bread and butter, contagion is an empirical reality that has to be dealt with, pragmatics
- Historians (such as Kindleberger) relate to empirical fact, longer term, episodic cycles, informal analysts
- Formal analysts rely primarily on mathematical models: concepts only exist if they can be modeled

Style of Reasoning	Research Question	Method
Informal Analysis: Historical	To test theories with the help of history and to develop theories from historical observations	-Descriptive statistics and informal modeling - inductive
Informal Analysis: Practitioners/technocrats	Find a solution to a policy concern	Descriptive statistics, informal theoretical analysis (eclectic)
Informal Analysis: Theoreticians	To explain and predict system behavior	Informal theoretical analysis: develop and engage critically with economic concepts and theories without models, apply to regulation
Formal Analysis: Quantitative Approach	To explain and predict system behavior	Mathematical modeling and econometrics

Table 3.1 Different Styles of Reasoning/Discourses Observed in Our Samples

PRACTITIONERS

- 1989: Brimmer (former Fed president: Explanation and justification of intervention of Fed in markets to stabilize financial markets and banks, even if at the boundaries of mandate: macroprudential thinking on interlinkages motivates intervention
- Kaminsky and Reinhart (1999, 2000) etc.: attempt to observe patterns in the data and seek to develop better forecasting of future events
- The early literature (2nd period) often refers to practitioners to justify its work (e.g. on contagion, Kauffman 1994)

HISTORICAL APPROACH

- Kindleberger, Calomiris and Gorton etc.: operate based on patterns in the data and seek to develop a model that fits these patterns
- Kindleberger thereby represents an old style of economics (AEA president 1985) that is replaced by economic model building by 1990
- Remarkable: the use of simple flow charts, comparing countries over long periods of time as points of departure

INFORMAL ANALYSIS: THEORETICIANS

- Borio et al (BIS), Brunnermeier etc
- seek to develop informally disequilibrium and endogenous risk models
- Work out the implications of financial cycle, systemic risk and other crucial concepts for regulation without formal models
- Allows dealing with more complex theoretical assumptions

PRELIMINARY FINDINGS SPECIFIC TO EACH SAMPLE

- Preliminary Findings Specific to Systemic Risk Sample
 - ✓ Inconsistent Evolution of the Conceptualization of Systemic Risk

- Preliminary Findings Specific to Banking Regulation Sample
 - ✓ The Regulatory Paradigm Shift Took Place Post-Crisis

Banking regulation Sample	Formal (Theoretical and (econometrical) empirical)	Informal Theoretical	Historical	Practitioners' discourse
1985-1989	7	3	0	0
1990-1994	5	4	1	0
1995-1999	8	2	0	0
2000-2004	8	2	0	0
2005-2009	7	2	0	1
2010-2014	2	8	0	0
Total	37	21	1	1
%share	61,64%	35%	1,68%	1,68%
Systemic Risk Sample	Formal (Theoretical/econometrical) empirical	Informal Theoretical	Historical	Practitioners' discourse
1985-1989	2	1	5	2
1990-1994	2	4	2	2
1995-1999	3	2	1	4
2000-2004	3	6	0	1
2005-2009	3	3	2	2
2010-2014	6	3	1	0
Total	19	19	11	11
%share	31,6%	31,6%	18,33%	18,33%

Table 3.2 Distribution of styles of reasoning in both samples

1985-1989	1990-1994	1995-1999	2000-2004	2005-2009	2014-2019
BR1 Kim, Santomero. 1988. Risk in Banking and Capital Regulation (733)	BR11 Dewatripont, Tirole. 1994. The Prudential Regulation of Banks (1394)	SB3 Freitas,Rochet. 1997. Microeconomics of Banking (2520)	BR28 Hellmann, Murdoch, Stiglitz. 2000. Liberalization, Moral Hazard in Banking(1317)	BR37 Barth, Caprio, Levine. 2006. Rethinking Bank Regulation (843)	BR16 Boria, and Zhu. 2012. Capital Regulation, Risk-taking and Monetary Policy (14)
BR2 Jacklin, Bhattacharya. 1988. Distinguishing Panics and Information-based Bank Runs (599)	BR12 Keeley. 1990. Deposit Insurance, Risk and Market Power in Banking (1588)	BR19 Berger, Herring, Seego. 1995. The Role of Capital in Financial Institutions (701)	BR29 Barth, Caprio, Levine. 2004. Bank Regulation and Supervision (1250)	BR 11 (Brunnermeier, Cochet, Goodhart, Helwig, Pagan, Shin. 2009. The Fundamental Principles of Financial Regulation. (864)	BR 17 Admati, and Pfleiderer. 2009. Bank Regulation, Systemic Risk and Myths in the Development of Capital Regulation (90)
BR3 Furlong, Keeley. 1989. Capital Regulation and Bank Risk-taking (461)	BR13 Stiglitz. 1993. The Role of the State in Financial Markets (1313)	BR20 Goodhart. 1998. Financial Regulation (520)	SB4 Demirgüç-Kunt, Detragiache. 2002. Does Deposit Insurance Increase Banking System Stability? (1214)	BR39 Laeven, Levine. 2009. Bank Governance, Regulation and Risk Taking (717)	BR18 Hanson, Kashyap, and Stein. 2011. A Macroprudential Approach to Financial Regulation (309)
BR4 Diamond, Dybvig. 1986. Banking Theory, Deposit Insurance and Banking Regulation (171)	SB1 Bhattacharya, Thakor. 1994. Contemporary Banking Theory (1061)	BR21 Bhattacharya, Bood, Thakor. 1998. The Economics of Bank Regulation (477)	BR30 Barth, Caprio, Levine. 2001. The Regulation and Supervision of Banks Around the World (748)	SB5 Acharya. 2009. A Theory of Systemic Risk of Prudential Regulation (451)	SB 11 Holmström, May. 2011. Systemic Risk in Banking Institutions (122)
BR5 Spong. 1985. Banking Regulation: Its Purpose, Implementation and Effects (164)	SB2 Calomiris, Gorton. 1991. The Origins of Banking Panics (616)	BR22 Bham. 1999. Do Capital Adequacy Requirements Reduce Risks in Banking? (391)	BR31 Boria. 2010. Towards a Macroprudential Framework for Financial Supervision and Regulation? (570)	BR40 Jimenez, Saurina. 2006. Credit Cycles, Credit Risk and Prudential Regulation (269)	BR49 Galati, Moessler. 2012. Macroprudential Policy (237)
BR6 Benston, Kaufman. 1988. Risk and Solvency Regulation of Depository Institutions (163)	BR14 Kozmser, Rajan. 1994. Is the Glass-Steagall Act Justified? (504)	BR23 Merton. 1995. Financial Innovation and the Management and Regulation of Financial Institutions (323)	BR32 Santos. 2000. Bank capital Regulation in Contemporary Banking Theory (451)	BR41 Barth, Caprio, Levine. 2008. Bank Regulations are Changing (239)	BR50 Beltratti, Stule. 2012. The credit Crisis Around the Globe (181)
BR7 Fischer. 1989. The Regulation of Banks (155)	BR15 White. 1991. The S&L Debacle (352)	BR24 Peek, Rosengreen. 1995. Bank Regulation and the Credit Crunch (308)	BR33 Jones. 2000. Emerging Problems with the Basel Capital Accord (421)	BR42 Allen, Carletti, Marquez. 2009. Credit Market Competition and Capital Regulation (196)	BR51 Gorton, Metrick, Shleifer. 2010. Regulating the Shadow Banking System (177)
BR8 Batenpenger. 1987. Banking deregulation in Europe (107)	BR16 Keeley, Furlong. 1990. A Reexamination of Mean-Variance Analysis of Bank Capital Regulation (317)	BR25 Bham, Helwig. 1995. The Macroeconomic Implications of Capital Adequacy (300)	BR34 Repullo. 2004. Capital Requirements, Market Power and Risk-taking (386)	BR43 Van Hoose. 2007. Theories of Bank Behavior under Capital Regulation (180)	BR52 Admati, Helwig. 2014. The Bankers New Clothes (161)
BR9 Keeley. 1988. Bank Capital Regulation in the 1980s (82)	BR17 Herring, Litan. 1994. Financial Regulation in the Global Economy (311)	BR26 Djovelyn. 1999. The Economic Rationale for Financial Regulation (255)	BR35 Matus, Vives. 2000. Imperfection Competition, Risk Taking, and Regulation in Banking (380)	BR 11 (Gambakis. 2005. Bank Regulation and Risk-taking Incentives (79)	BR53 Holmström. 2010. A \$100 Billion Question? (139)
BR10 Pyle. 1986. Capital regulation and Deposit Insurance (79)	BR18 Giannarino, Lewis. 1993. An Incentive Approach to Banking Regulation (166)	BR27 Besanko, Kanatas. 1996. The Regulation of Bank Capital (229)	BR36 Barth, Caprio, Levine. 2001. Banking Systems Around the Globe (369)	BR45 Boria, Shin. 2007. What can (macro-)prudential Policy do to Support Monetary Policy? (138)	BR54 Clement. 2010. The Term 'macroprudential': Origins and Evolution (122)

Table 2.1 Banking Regulation Sample

MATHEMATICAL MODELS AND ECONOMETRICS

- Mathematical economic models dominate the analysis of the five periods of the banking regulation sample
- In the first four periods of both samples, mathematical modelling uses comparative statics, based on partial equilibrium
- Seeking to explain financial fragility itself, but not how it can work over a cycle, exogenous shocks rather than endogenous build-up of risk
- E.g. Bernanke and Gertler 1990: use exogenous shock to vary leverage of borrowers, include moral hazard and you get more or less financial fragility, and thus reproduces Minsky's argument, but without the cycle etc.
- E.g. Diamond and Dybvig (1983) model: one representative bank to solve the riddle of their existence and bank-runs

1985-1989	1990-1994	1995-1999	2000-2004	2005-2009	2010-2014
SR1 Mankiw. 1986. The Allocation of Credit (423)	SR1 Bhattacharya, Thakor. 1994. Contemporary Banking Theory (1061)	SR19 Kaminsky, Reinhart. 1999. The Twin Crises (4323)	SR28 Allen, Gale. 2000. Financial Contagion (2114)	SR37 Brunnermeier. 2008. Depleting the Liquidity and Credit Crunch 2007-08 (1992)	SR46 Adrian, Brunnermeier. 2011. CoVaR (986)
SR2 Schwartz. 1987. Real and Pseudo-Financial Crises (278)	SR11 Bernanke, Gertler. 1990. Financial Fragility (849)	SR20 Radelet, Sachs. 1998. The Onset of the East Asian Financial Crisis. (2738)	SR4 Demirgüç-Kunt, Detragiache. 2002. Does Deposit Insurance Increase Banking System Stability? (1214)	SR38 Reinhart, Rogoff. 2008. Is the 2007 US Sub-prime Financial Crisis so Different? (793)	SR47 Gorton, Metrick. 2012. Securitized Banking and the Run on Repo (655)
SR3 Taylor, O'Connell. 1985. A Minsky Crisis (240)	SR12 Minsky. 1992. The Financial Instability Hypothesis (702)	SR3 Freixas, Rochet. 1997. Microeconomics of Banking (2515)	SR2 Borio, Lowe. 2002. Asset Prices, Financial and Monetary Stability (1190)	SR39 Taylor. 2009. The Financial Crisis and the Policy Responses (779)	SR48 Acharya, Pedersen, Philippon Richardson. 2010. Measuring Systemic Risk (548)
SR4 Gorton, Mullineux. 1987. The joint production of confidence. (173)	SR2 Calomiris, Gorton. 1991. The Origins of Banking Panics (614)	SR21 Berger, Demsetz, Strahan. 1999. The Consolidation of the Financial Services Industry (1324)	SR3 Caprio, Klingebiel. 2002. Episodes of Systemic and Borderline Banking Crises (1067)	SR40 Corsetti, Pericoli, Sbracia. 2005. Some Contagion, Some Interdependence (516)	SR49 Gai, Kapadia. 2010. Contagion in Financial Networks (332)
SR5 Eichengreen and Portes. 1987. An Anatomy of Financial Crises (149)	SR13 Kaufman. 1994. Bank Contagion (400)	SR22 Demirgüç-Kunt, Detragiache. 1998. The Determinants of Banking Crises (1272)	SR3 Kaminsky, Reinhart. 2000. On Crises, Contagion, and Confusion (1049)	SR41 Beck, Demirgüç-Kunt, Levine. 2006. Bank Concentration, Competition and Crisis (474)	SR50 Mendoza. 2010. Sudden Stops, Financial Crises, and Leverage (325)
SR6 Schwartz. 1988. Financial Stability (100)	SR14 Bernanke. 1990. The Gold Standard, Deflation and Financial Crisis in the Great Depression (335)	SR21 Demirgüç-Kunt, Detragiache. 1998. Financial Liberalization and Financial Fragility (1191)	SR32 Borio, Eichengreen, Klingebiel. 2001. Is the Crisis Problem Growing More Severe? (865)	SR42 Schwarcz. 2008. Systemic Risk. (462)	SR6 Hallang, May. 2011. Systemic Risk in Banking Ecosystems (322)
SR7 Kindleberger. 1988. The International Economic Order - Essays on Financial Crisis (89)	SR15 Sundarajan, Balino. 1991. Banking Crises (191)	SR24 Diamond, Rajan. 1999. Liquidity Risk, Liquidity Creation and Financial Fragility (1062)	SR33 Borio, Furfine, Lowe, Procyclical of the Financial System (791)	SR5 Acharya. 2009. Theory of Systemic (451)	SR51 Laeven, Valencia. 2013. Systemic Banking Crises Database (268)
SR8 Brimmer. Central Banking and Systemic Risks in Capital Markets (84)	SR16 Calomiris. 1993. Financial factors in the Great Depression (164)	SR2 Goldstein. 1998. The Asian Financial Crisis (751)	SR34 Allen, Gale. 2000. Bubbles and Crisis (788)	SR43 Taylor, Williams. 2008. A black Swan in the Money Market (435)	SR52 Shleifer, Vishny. 2010. Unstable Banking (255)
SR Tobin. 1986. Financial innovation (81)	SR17 Mishkin. 1994. Preventing Financial Crisis (113)	SR26 Caprio, Klingebiel. 1996. Bank Insolvency (627)	SR35 Freixas, Parigi, Rochet. 2000. Systemic Risk (680)	SR44 Crotty. 2009. Structural Causes of the Global Financial Crisis (433)	SR53 Brownless, Engle. 2012. Volatility, Correlations and Tails for Systemic Risk Measurement (223)
SR10 Balino. 1987. The Argentine Banking Crisis of 1980 (78)	SR18 Park. 1991. Bank Failure Contagion in Historical Perspective (96)	SR27 Rochet, Tirole. 1996. Interbank Lending and Systemic Risk (611)	SR36 De Bandt, Hartmann. 2000. Systemic Risk (663)	SR45 Acharya, Richardson. 2009. Restoring Financial Stability (397)	SR54 Battiston, Gatti, Gallegati, Greenwald and Stiglitz. 2012. Liaisons dangereuses: Increasing connectivity, risk sharing, and systemic risk (218)

Table 2.2 Systemic Risk Sample

UNDER-CONCEPTUALIZATION OF SYSTEMIC RISK

- It is remarkable that systemic risk is used as an intuitive concept related to financial crisis, however it does not receive a systematic definition in most texts
- Only in the late 1990s do we find the emergence of the concept, and only after 2005 it crystallizes into a measurable format
- What is the problem with systemic risk? (contradicts neoclassical paradigm?)

MATHEMATICAL MODELS ARE CONSTRAINING

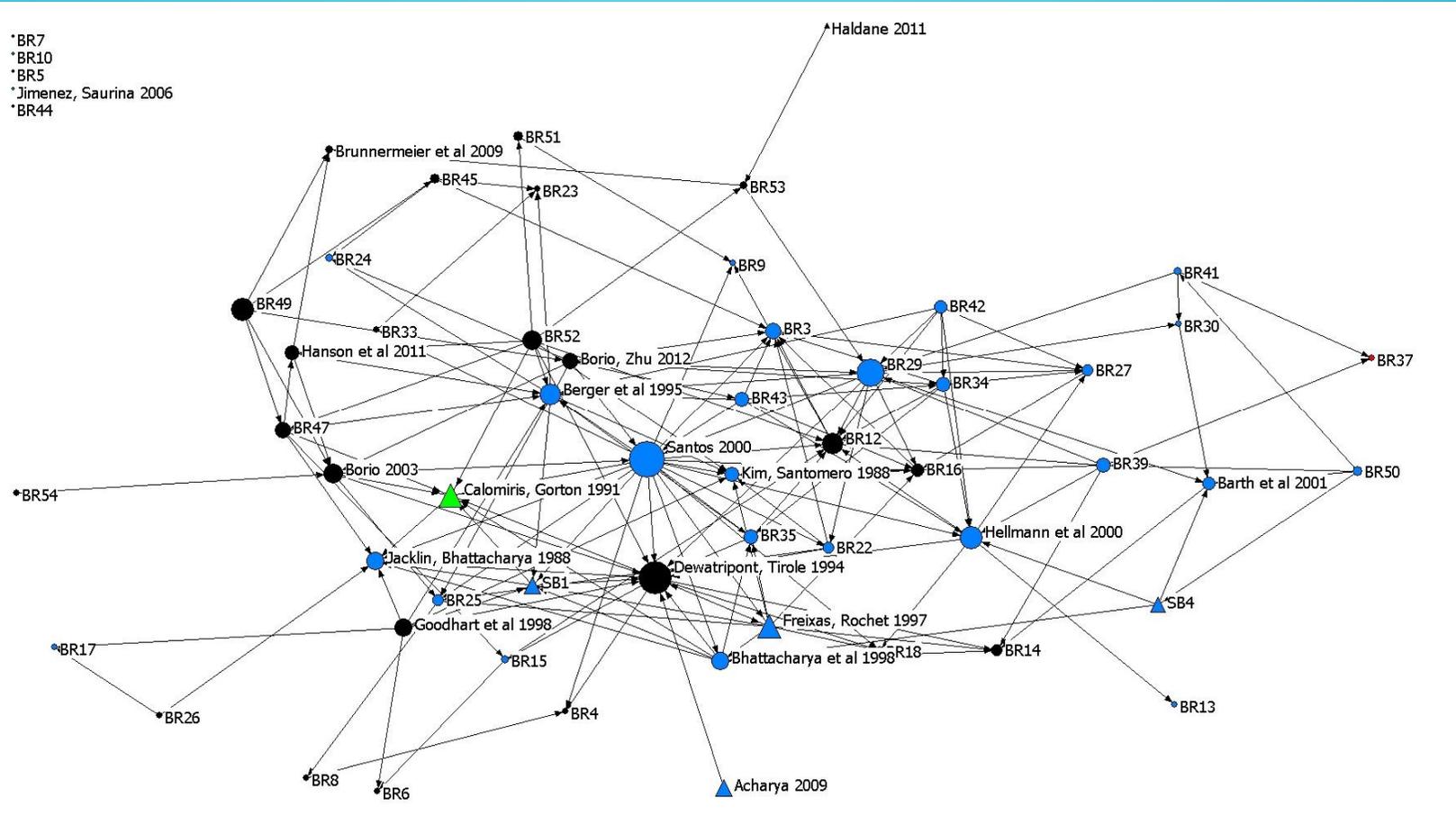
- Informal analysts could think about systemic risk and discuss it, whereas quantitative scholars could not establish a conversation without a model.
- It is not a coincidence that the three first periods in the banking regulation sample witnessed very little developments.
- Do quantitative models begin to constitute a barrier for perceiving reality because economists become invested in improving existing models rather than investing in understanding reality?

Style/Sample	Banking Regulation Sample	Systemic Risk Regulation Sample:
Historical	7	26
Informal	55	12
Practitioner	2	31
Formal	131	41

Table 3.3 Number of citations per style per sample

Period/Classification				
Banking regulation Sample.	Formal	Informal-theoretical	Historical	Practitioners' Style
1985-1989	0	0,017	0	0
1990-1994	0,077	0,046	0,038	0
1995-1999	0,109	0,076	0,022	0,056
2000-2004	0,106	0,116	0,03	0,095
2005-2009	0,054	0,024	0,008	0,017
2010-2014	0,055	0,071	0,033	0,017
Total	0,0668	0,058	0,0218	0,031
Period/Classification				
Systemic risk Sample	Formal	Informal-theoretical	Historical	Practitioners' Style
1985-1989	0	0	0	0
1990-1994	0,038	0,015	0,087	0,075
1995-1999	0,045	0,047	0,022	0,067
2000-2004	0,058	0,03	0,045	0,178
2005-2009	0,029	0,014	0,038	0,05
2010-2014	0,016	0,008	0,02	0,008
Total	0,031	0,019	0,035	0,063

Table 3.4 Density distribution between Periods and Classifications for the banking regulation and the systemic risk sample. Density goes from periods towards classification



• Figure 3.1 Banking Regulation Sample Network. Colours correspond to the colours in the tables 2.1 and 2.3. Banking regulation sources are depicted as circles. Sources common to both samples are depicted as triangles. In this figure and the following, academic papers cited within the discourse analysis are depicted by author name, the others are depicted by their place in the table.

FOLLOW UP WORK

- 5000 texts on systemic risk and macroprudential regulation
- Financial cycle has no prominence
- Publications focus on the short-term systemic risk measures: liquidity, contagion and in general resilience

HOW ECONOMICS NEEDS TO CHANGE TO SUPPORT THE PARADIGM SHIFT?

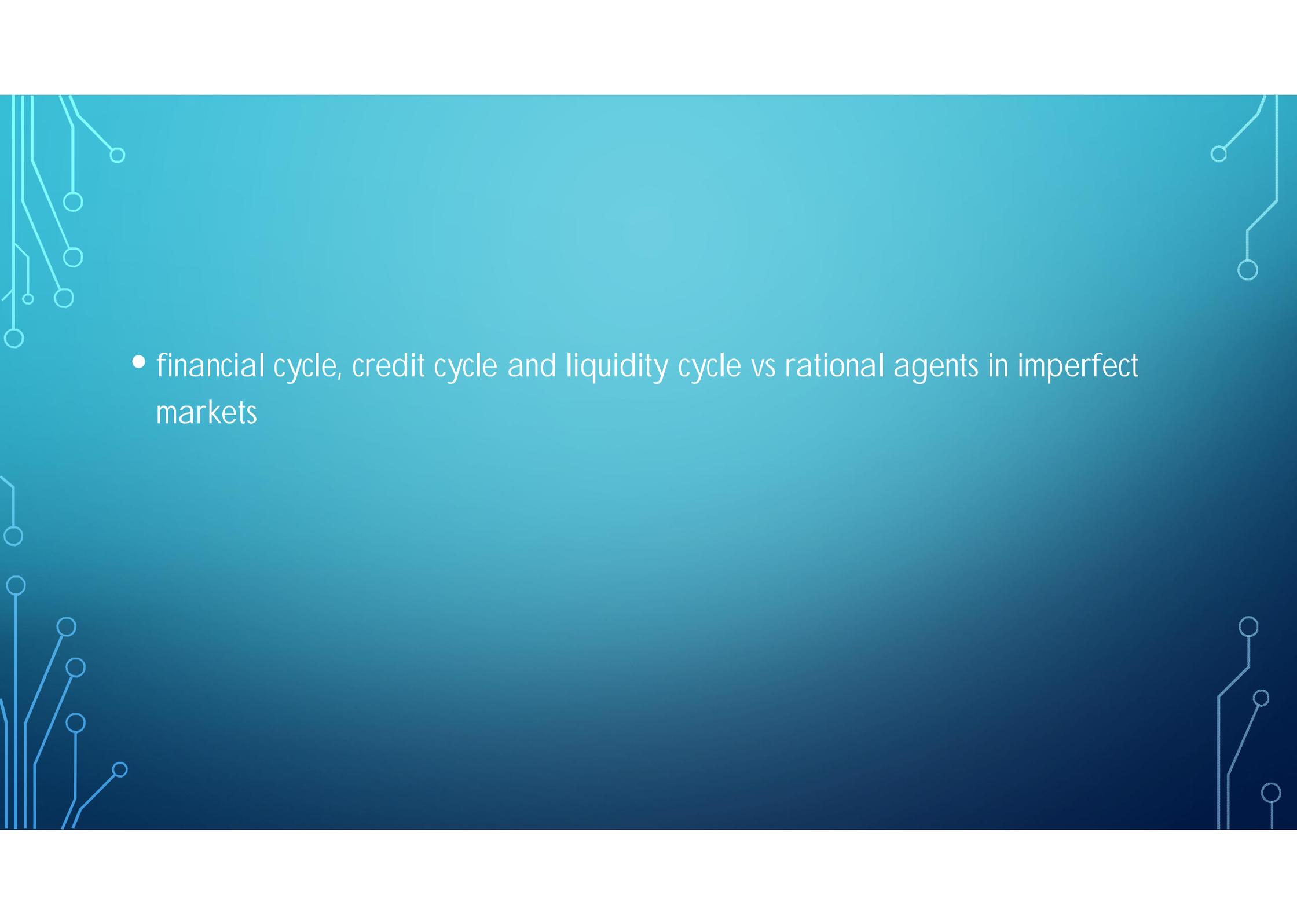
- Need to permit informal practical reasoning to enter into the debate
- Need to acknowledge diversity of agents and the need for a diversity of agents
- Need to move beyond rational expectations hypothesis
- Need for institutional analysis of the evolution of the financial system as a whole, that allows for informal reasoning not based on models
- Need for acceptance of impact of regulation upon the system: e.g. upon system diversity

ROLE OF ECONOMIC INQUIRY NOT BASED ON MODELS

- Economic analysis has pointed to the dangers of the repo-market linking banks and non-banks (Perrotti 2012)
- Economists have analyzed the new institutional set-up of the new system of market-based credit intermediation (known as shadow banking, Pozsar 2014, Mehrling et al 2013)
- Using a balance sheet approach, they have shown the role of banks in it as well as the drivers in the decision making behavior of the different agents
- Theories of the hierarchy of money allow for a more differentiated understanding of the evolution of financial markets

MAPPING THE FINANCIAL ECO-SYSTEM

- Such analysis, which takes first and foremost the observed phenomena of growth in financial markets (e.g. shadow banking) and their disruption (e.g. margin spirals in repo-markets) as their starting point can prove useful for financial regulators

- 
- financial cycle, credit cycle and liquidity cycle vs rational agents in imperfect markets

SHIFT IN METHODS AND MODELLING TECHNIQUES

- From Partial Equilibrium to general equilibrium and network analysis
- E.g. The networks of banks linked via inter-bank deposits and prone to contagion (Kaufmann 1994, Franklin and Allen 2000)
- E.g. Towards networks of banks linked via common exposure of assets with the danger of joint over-exposure (Acharya 2009), in which systemic risk is growing endogenously which then can also be measured
- From comparative static analysis to dynamic analysis, E.g., time-dimension of risk (Borio, 2003)
- This is part of the paradigm shift as each paradigm has, to specific extent, its distinctive methods and modelling techniques

MAIN TENETS OF BASEL II

- Private agents can best calculate the risks they engage in, using modern statistical techniques: risk forecasting models: they seek to harmonize it, based on rational expectations models, there is one correct model
- Need for complete markets in order to optimize financial market risk gestation: not less, but more markets are needed
- Liquidity as a problem is neglected
- Intra-bank conflicts between bank managers and depositors/shareholders is the focus
- Pure micro-prudential approach: focus on individual institutions: can they withstand an external shock?