



# Fitting Macroprudential into the Picture: Models, Institutions and Instruments

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# Introduction and context

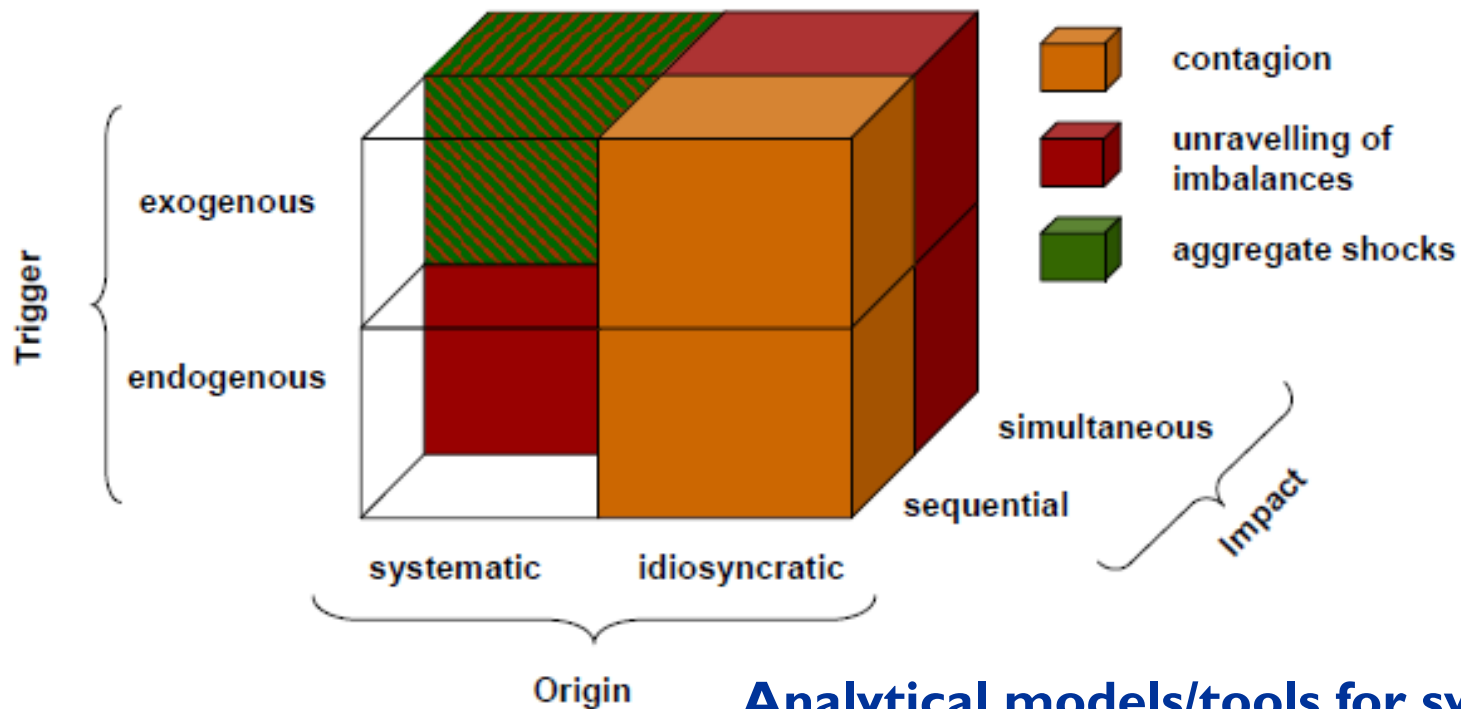
- **Lesson from the crisis: Macroprudential wing of financial policy needs to be significantly developed**
- **Macroprudential policy (MaP)**
  - **Supervision: Public oversight that aims at identifying and containing systemic risks (rather than risks of individual intermediaries or markets)**
  - **Regulation: Public regulations that aim at maintaining systemic stability**
- **Systemic risk (ECB 2009): Risk that financial instability becomes so widespread that it impairs the functioning of a financial system to the point where economic growth and welfare suffer materially**
- **Creation of the European Systemic Risk Board in 2011**
- **Capital Requirements Directive (CRDIV) and Capital Requirements Regulation (CRR) expected to become effective in January 2014**
- **Single Supervisory Mechanism (SSM) at the ECB planned to start mid/end 2014 (part of a banking union comprising in the future also resolution and deposit insurance)**

# Outline

- **Introduction and context**
- **Models: Operational analytical tools and fundamental research**
- **Institutions: Allocation across authorities and integration in the central bank**
- **Instruments: Regulatory policy and coordination**
- **Further considerations**
- **References**
- **Annex**

# Forms of systemic risk and analytical approaches

## The systemic risk cube:



## Analytical models/tools for systemic risk:

- **SR 1: Contagion** – **Contagion and spillover models**
- **SR 2: Endogenous build-up and unravelling of widespread imbalances** – **Early warning indicators and models**
- **SR 3: Aggregate shocks** – **Macro stress testing models**

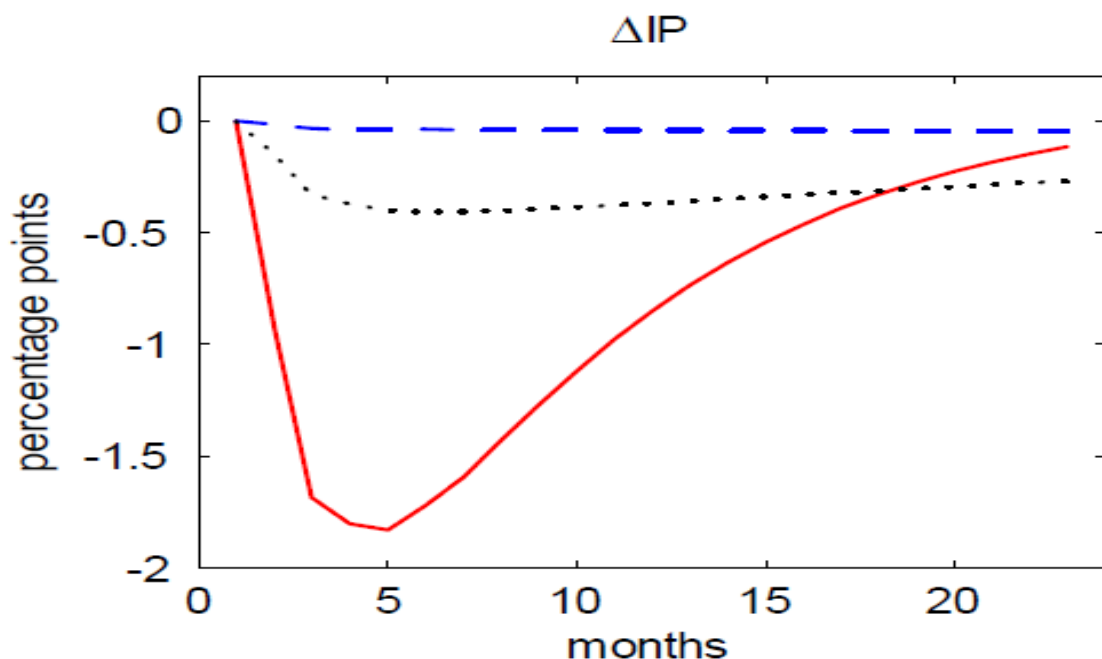
Source: Author based on de Bandt, Hartmann and Peydró (2009) and ECB (2010a)

# Fundamental research developments I

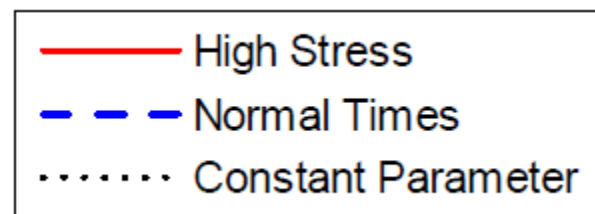
- Perhaps the **greatest challenge of the economics profession**: How to integrate widespread financial instability in an aggregate model? (ECB 2012)
- **ESCB Macprudential Research Network (MaRs), Work Stream I**
- Structural: Joint cross-country project developing a model for assessing macroprudential regulatory policy instruments
  - Title “A macroeconomic model with three layers of default”
  - Authors: Clerc (Banque de France), Derviz (Czech National Bank), Mendicino (Banco de Portugal), Moyen (Deutsche Bundesbank), Nikolov, Stracca (both ECB), Suarez (CEMFI) and Vardoulakis (Banque de France and ECB)
  - Nonlinear dynamic general equilibrium model in which heterogeneous banks, households and firms can default
  - Allows welfare assessment of core macroprudential policy instruments: Various capital requirements, loan-to-value limits, liquidity coverage ratio etc.
  - To be developed into a tool for policy support by end 2013

# Fundamental research developments 2

- **Empirical: Impact of widespread financial instability on growth**
  - Title “Melting down: Systemic financial instability and the macroeconomy”
  - Authors: Hartmann, Hubrich, Kremer (all ECB) and Tetlow (Federal Reserve Board)
  - Incorporating our **Composite Indicator of Systemic Stress (CISS)** in a **Markov-Switching Bayesian Vectorautoregression Model**



Impulse response functions of a one standard deviation shock in the CISS on output in 3 different regimes (monthly euro area data, 1987-2010)



# An evolving institutional landscape in the EU

- **European System of Financial Supervision (since 2011)**
  - **ESRB: Systemic risk warnings and MaP policy recommendations (review by end 2013)**
  - **3 sectoral supervisory authorities: Banks – EBA; Securities markets – ESMA; Insurance and pension funds – EIOPA**
- **Single Supervisory Mechanism at the ECB (legisl. process close to end)**
  - **Prudential supervision of credit institutions, also contributing to the stability of the financial system in the EU and member states**
  - **Direct supervision of “significant” banks of joining countries**
  - **Microprudential (“MiP”) and MaP tasks**
  - **Cooperation with ESRB, EBA, ESMA, EIOPA, resolution and deposit insurance authorities, Commission and Council**
- **National Supervisory Authorities**
  - **Key players in MaPs due to national credit cycles, local information and members in ESFS and SSM**
  - **ESRB recommendation on national MaP mandates (Dec 2011)**

# Macroprudential policy and the ECB

- **SSM** (April 2013 draft legislation, Council 2013c)
  - Separation from monetary policy (objectives, tasks, policy instruments, organisation and reporting lines etc.)
  - Supervisory Board (SB) in the ECB (Chair, Vice-Chair, National Supervisory Authorities (NSAs) of joining countries and 4 ECB)
  - Dedicated departments and Secretariat in the ECB
- **ESRB**
  - Separate authority with the ECB President as chair and the ECB being a member
  - Supported administratively, logistically, statistically and analytically by the ECB, also drawing on the technical advice of NCBs/NSAs (ECB provides Secretariat)
  - Competent ECB business areas (DG Financial Stability, DG Statistics etc.) provide support



# MaP instruments and their legal level I

- **Options at EU level/SSM**
  - **CRDIV (Council 2013a; needs transposition into national law)**
    - **Capital**
      - Counter-cyclical capital buffer
      - Systemic risk buffer (“structural”)
      - Capital surcharge for systemically important financial institutions
    - **Pillar 2 measures applied for groups of institutions**
  - **CRR (Council 2013b; applies directly to banks)**
    - **Sectoral capital requirements or sectoral risk weights**
    - **Leverage ratio (once implemented)**
    - **Large exposure limits**
    - **Liquidity requirements (LCR, NSFR; once implemented)**
    - **Public disclosure requirements**
  - **Aiming at systemic risks SSM can make instruments more restrictive (subject to prior consultation of NSAs and procedures in CRD and CRR)**
  - **Can also instruct NSAs to act on national competences**

# MaP instruments and their legal level 2

- **Only national level** (e.g. some very “distributive” instruments)
  - Loan-to-value limits
  - Loan-to-income or debt-service-to-income limits
  - Loan-to-deposit limits
  - Levies on non-stable funding
  - Margin and haircut requirements (repos)
  - Prior consultation of ECB/SSM
  - Can also propose to the ECB to act
- **Recent ESRB recommendation on MaP instruments and intermediate targets (ESRB 2013)**

# Cross-country coordination problems

- **NSAs could optimise policy for its domestic banking system and not take externalities on foreign banking systems into account**
- **Asymmetric credit cycle**
  - **Country A upturn and country B downturn**
  - **If A requires higher capital/liquidity levels from banks, then (i) their branches in B may also lower lending reinforcing the foreign downturn or (ii) they may repatriate capital/liquidity from subsidiaries in B increasing their riskiness**
- **Symmetric credit cycle**
  - **Suppose countries A and B in an upturn, but have a differential assessment of the situation (A tightens more than B)**
  - **(i) A banks substitute credit in A/liquidity in B by credit in B/liquidity in A potentially increasing risk in B or (ii) repatriate capital/liquidity from B reducing credit there**
- **Evidence of regulatory spillovers: Ongena, Popov and Udell (2013)**

# More coordination issues

- **SSM among joining countries**
- **Coordination with not joining EU member states (Bilateral? Review of ESRB? Future role of EBA?)**
- **Between monetary policy and MaP (separation versus coordination; see also overview of research in ECB 2012)**
- **With competition authorities (see e.g. Carletti and Hartmann 2003) or DG Competition state aide procedures**
- **Between partly similar regulatory instruments (transmission channels, timing etc.)**
- **Between MiP and MaP (often consistent, but same instruments and fallacy of composition→hierarchy?)**

# Further considerations

- **Some important principles**
  - **Strong involvement of central banks in MaP**
  - **Strong role of national MaP authorities**
  - **Overcome bias in favour of inaction when things go well (upturn when imbalances may build up)**
- **Potential areas for future work**
  - **Fixed list of regulatory instruments in CRDIV/CRR. Review by the Commission by end 2014. Flexibility versus legal certainty? (ESRB 2013 recommends regular reviews)**
  - **Move from palliative regulatory instruments (buffers) more towards preventive instruments?**
  - **Streamlining and clarification of coordination roles of EBA, ESRB, Commission and Council in SSM regulation, CRDIV and CRR**

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# Annex

# Ultimate sources of systemic risk

## SPECIAL FEATURES OF THE FINANCIAL SYSTEM

Information intensity of financial contracts

Balance-sheet structures of intermediaries

High degree of connectedness

Incomplete markets

Asymmetric and imperfect information

Externalities

Public good character of systemic stability

Multiple equilibria

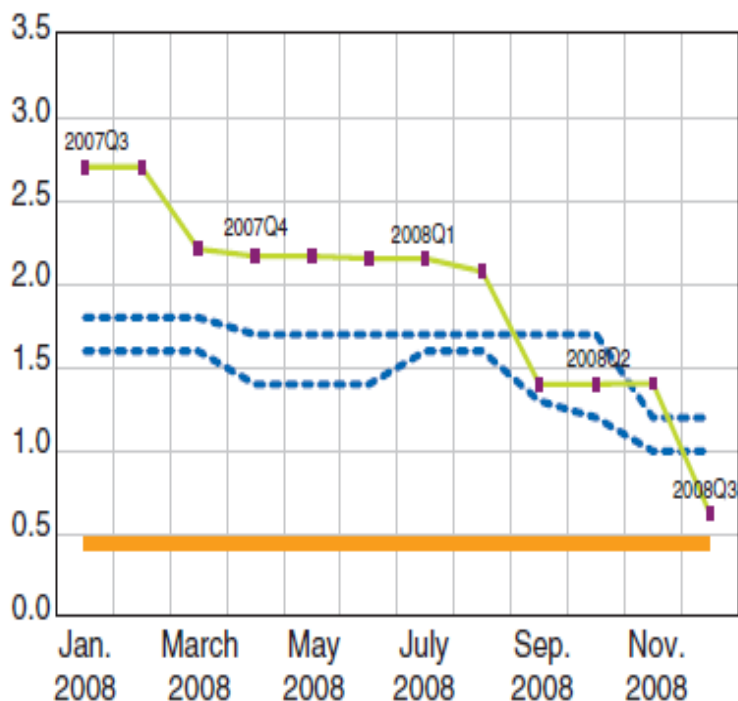
Powerful feedbacks and amplification:  
Non-linearities/  
regime changes

# Impact of widespread financial instability on growth

## Real time euro area GDP growth forecast errors and coincident growth releases

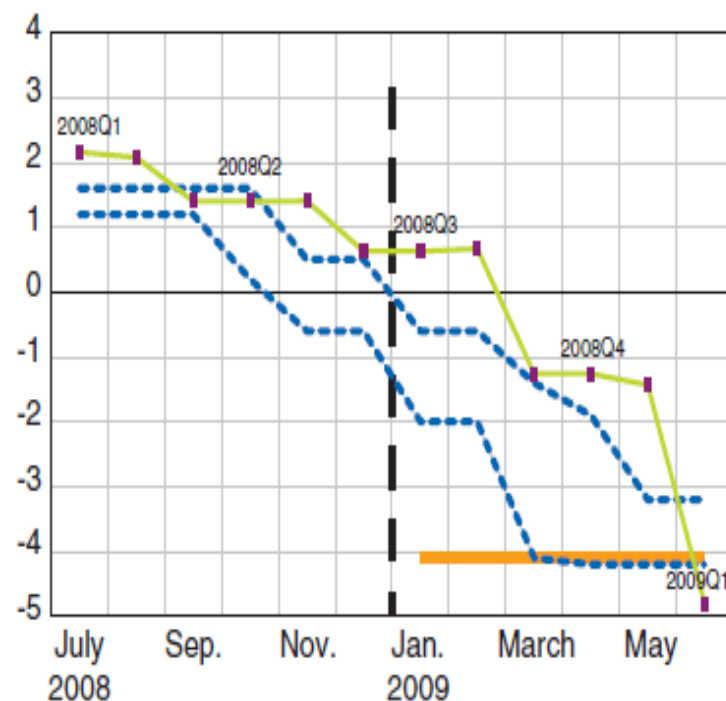
(%)

### a) For 2008



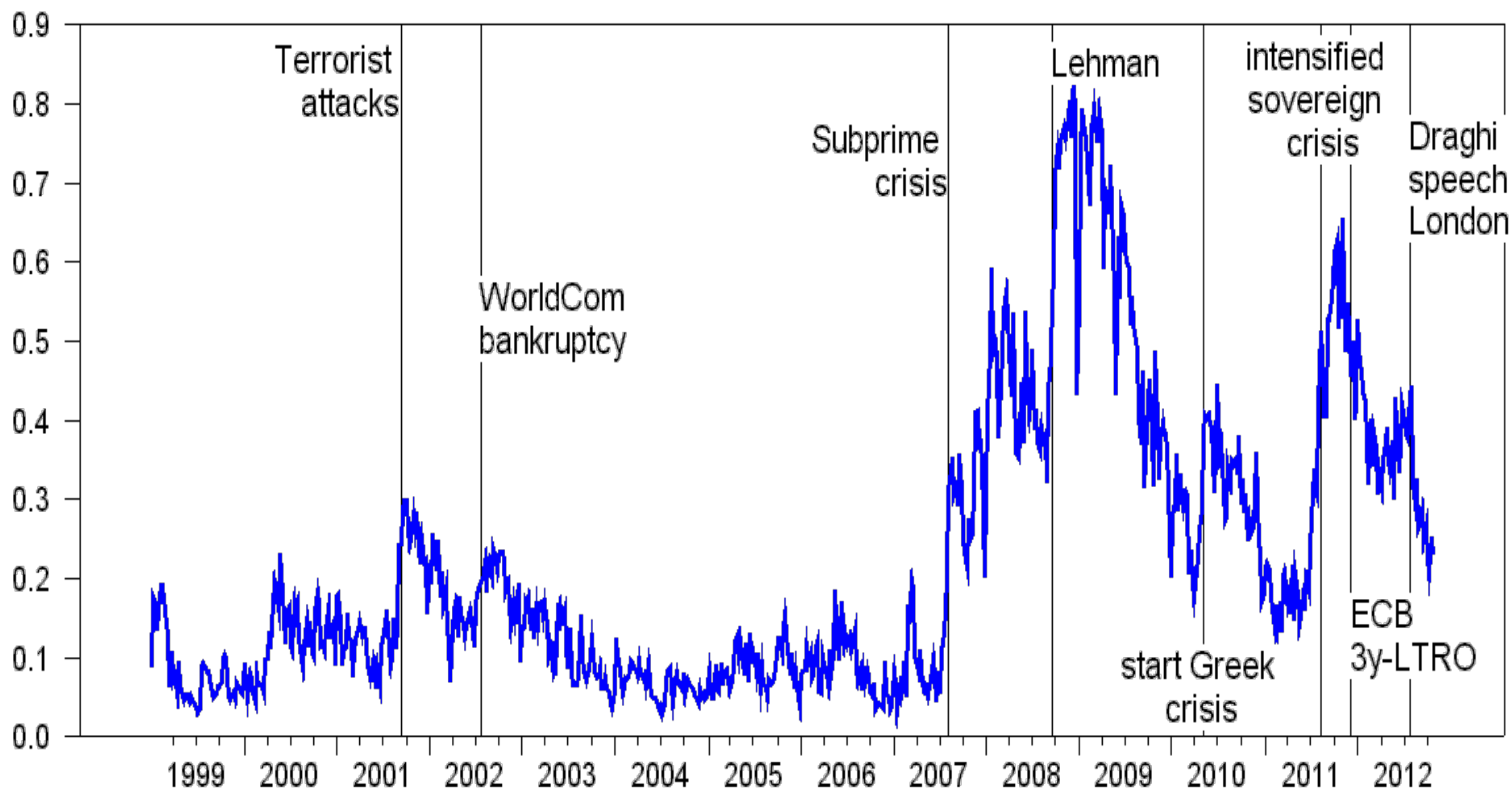
- First release of year on year growth rates (reference period indicated)
- - - Minimum/maximum 2008 forecast
- Annual growth rate 2008 (ex post)

### b) For 2009



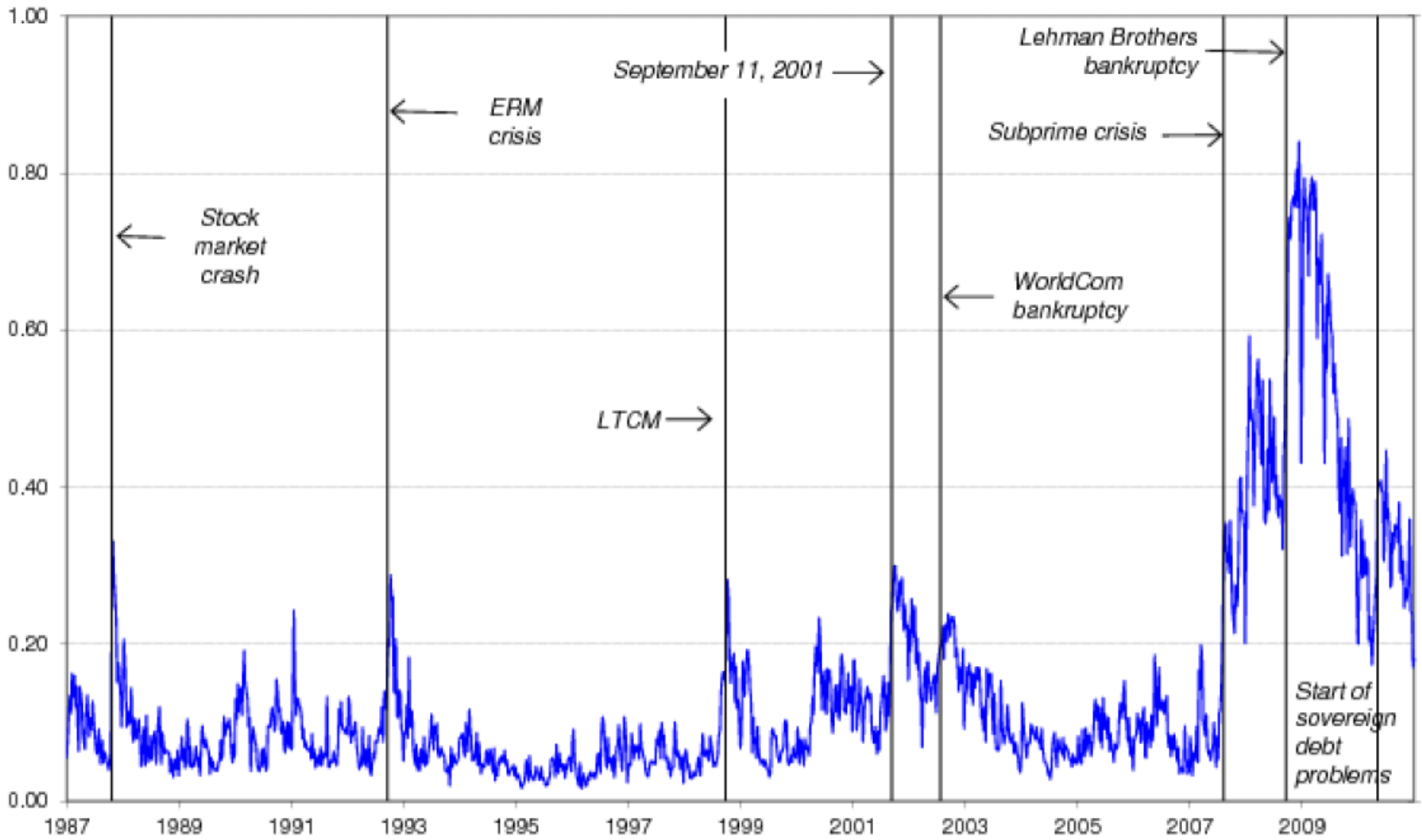
- First release of year on year growth rates (reference period indicated)
- - - Minimum/maximum 2009 forecast
- Annual growth rate 2009 (ex post)

# Composite indicator of systemic stress (“CISS”)



- **Scope: Equity, bond, money and FX markets plus banking (various sub-items) - real time**
- **Basic sub-measures include volatilities, trends, spreads, recourse to marginal lending (weekly data)**
- **Normalisation between 0 and 1 and aggregation weighted with correlations (“systemic”)**

# CISS and stress events between 1987 and 2010



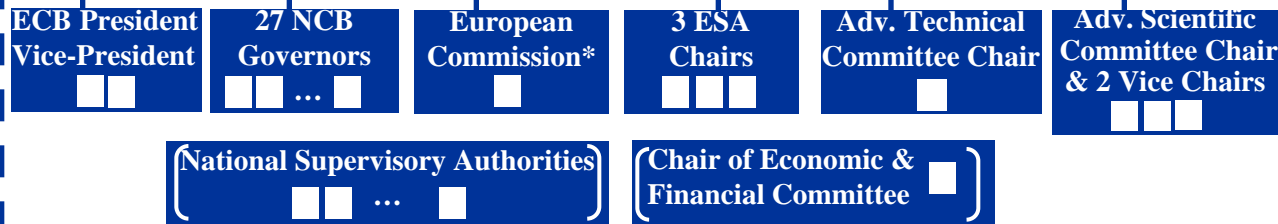
# European System of Financial Supervision

## European Central Bank

*Analytical, logistical, statistical & administrative support*

### European Systemic Risk Board (ESRB)

Chair: ECB President



\* Potential recipient of policy recommendations with respect to EU legislation

*Micro-prudential information*

*Information on systemic risks*

### European Supervisory Authorities (ESAs)

European Banking Authority (EBA)

European Insurance & Occupational Pensions Authority (EIOPA)

European Securities & Market Authority (ESMA)

National Banking Supervisors

National Insurance Supervisors

National Securities Supervisors



EUROPEAN COUNTRIES  
EUROPEAN UNION

# Macroprudential regulatory instruments I

- To contain contagion risks
  - Enhance capital for counterparty exposures, introduce capital surcharge or levy for systemic risk
  - Move derivatives trading on central clearing counterparties
  - Introduce procedures for orderly resolution of gone concern (incl. living wills, bail-in debt)
- To prevent the build-up of widespread imbalances
  - Counter-cyclical capital requirements and dynamic provisioning
  - Balanced accounting approach (market prices, liquidity)
  - Limit leverage, maturity and currency (emerging economies) mismatches
  - Influence compensation practices to remove incentives for risk taking and herding
  - Loan-to-value ratios and debt-to-income limits (e.g. Korean and Hong Kong experiences)



# Macroprudential regulatory instruments 2

- **Ensure resilience against unexpected aggregate shocks**
  - High capital and liquidity levels (e.g. based on stress tests)
  - Additional contingent capital (going concern)
  - Foreign currency lending limits (emerging economies)
- **Challenges** (partly related to research gaps)
  - Transmission channels not well understood (impact assessments)
  - Calibration of individual instruments difficult
  - Interaction of different instruments
  - Level playing field across financial sub-sectors and avoidance of regulatory arbitrage (shadow banking)
  - Effects on overall economy (benefits and costs)

# Macroprudential Research network (MaRs)

- **European System of Central Banks (ESCB) research network (EU 27)**
- **Started in late spring 2010**
- **Objective: Develop core conceptual frameworks, models and/or tools that would provide research support to improve macro-prudential supervision in the EU**
- **Three work streams**
  - **WS1: Macro-financial models linking financial stability and the performance of the economy (joint cross-country project developing an aggregate model for assessing macroprudential regulatory policies)**
  - **WS2: Early warning systems and systemic risk indicators (joint cross-country project on a database of European crises)**
  - **WS3: Assessing contagion risk (joint cross-country project using payment system data)**
- **Over time about 200 economists working on more than 120 individual projects**
- **Consultants: Hans Degryse (KU Leuven) and Javier Suarez (CEMFI)**
- **Conferences in October 2011 and October 2012**
- **Report after 2 years in October 2012 (ECB 2012)**
- **Final report planned in spring 2014**