Financial Stability and Macroprudential Policy

Paul Hiebert
Directorate General Macroprudential Policy and Financial Stability

ECB Central Banking Seminar
Frankfurt am Main, 9 July 2018
## Agenda

<table>
<thead>
<tr>
<th></th>
<th>Preliminaries</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Surveillance and assessment</td>
</tr>
<tr>
<td>3</td>
<td>Policy</td>
</tr>
<tr>
<td>4</td>
<td>Institutional aspects</td>
</tr>
</tbody>
</table>
Real economic costs, as well as costly activation of public safety nets

Foregone GDP

Euro area GDP more than 10% lower than 2001-2007 trend at end of 2015

Source: Eurostat, ECB calculations
Notes: All series are rebased to an index with 2007q4 as base quarter (=100). The dotted line is a linear extrapolation using the sample 2001-2007.
Latest Observation: 2015q3

Higher sovereign liabilities

Euro area debt-to-GDP ratios 20 p.p. higher than pre-crisis

Source: ECB calculations.
Latest Observation: 2015q2
Financial stability | Systemic risk

“Systemic risk can best be described as the risk that the provision of necessary financial products and services by the financial system will be impaired to a point where economic growth and welfare may be materially affected.”

- ECB Financial Stability Review

Macroprudential policy aims to:

- prevent the excessive build-up of risk, to smoothen the financial cycle (time dimension)

- make the financial sector more resilient and limit contagion effects (cross-section dimension)

- encourage a system-wide perspective in financial regulation to create the right set of incentives for market participants (structural dimension)
Why is macroprudential policy particularly relevant for the ECB?

- A single monetary policy geared towards price stability is necessary but not sufficient to ensure financial stability, especially in a heterogeneous monetary union.
- Macroprudential policy coordinated across SSM countries can address financial imbalances, counter systemic risks and mitigate externalities to foster financial stability.

Financial cycles are not synchronised across euro area countries

The financial stability and macroprudential process

- **Risk Surveillance & Assessment**
  - Products:
    - Reports on Financial Stability
    - Banking Structures
    - Financial Integration

- **Policy Design**
  - Macroprudential Report
  - Ad Hoc Reports
  - Recommendations and Warnings (including public speeches)

- **Policy Implementation Issues**
  - Legal Opinions
  - Legal Regulations and provisions

---

1 – Preliminaries
## Agenda

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Preliminaries</td>
</tr>
<tr>
<td>2</td>
<td><strong>Surveillance and assessment</strong></td>
</tr>
<tr>
<td>3</td>
<td>Policy</td>
</tr>
<tr>
<td>4</td>
<td>Institutional aspects</td>
</tr>
</tbody>
</table>
Risk surveillance & assessment

Tasks
- Review financial stability indicators (Systemic Risk Indicators, Risk dashboards)
- Extract early warning signals
- Conduct stress tests
- Assess interconnectedness

Objectives
- Identify sources of risk
- Assess financial system vulnerability
- Prioritise risks

Policy design & instrument selection
- Address identified risks with most effective instruments
- Account for multiple dimensions of policy objectives
- Select from available instruments
- Calibrate instruments
- Assess costs & benefits, including possible leakages and spillovers

Policy implementation issues
- Institutional structure
- Policy decision and implementation
- Communication
- Make calibrated instruments operational
- Prepare legal provisions
- Implement measures
- Analyse effectiveness of implemented measures

Policy assessment feeds back to risk monitoring and analysis
## Time series and cross sectional dimensions of systemic risk

<table>
<thead>
<tr>
<th>Phase</th>
<th>Type of systemic risks</th>
<th>Measurement focus</th>
<th>Dimension</th>
<th>Examples of vulnerabilities/externalities</th>
<th>Modelling approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk build-up</td>
<td>Cyclical risks</td>
<td>Probability of default</td>
<td>Time</td>
<td>Asset price misalignment, excessive leverage, maturity mismatch</td>
<td>Time series models, early warning models, market-based indicators</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amplification of shocks</td>
<td>Contagion and spillovers</td>
<td>Loss given default</td>
<td>Cross-sectional, cross-border</td>
<td>Interconnectedness, commonalities in exposures</td>
<td>Networks, spillover models, conditional loss probabilities, structural</td>
</tr>
</tbody>
</table>

Source: ECB Financial Stability Review (2018), May
Quantitative measures and the term structure of systemic risk...

<table>
<thead>
<tr>
<th></th>
<th>Financial Stability Risk Index (FSRI)</th>
<th>Cyclical Systemic Risk Indicator (CSRI)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Predictive Horizon</strong></td>
<td>near term (&lt;1Y)</td>
<td>medium-term (&gt;1Y)</td>
</tr>
<tr>
<td><strong>Indicators</strong></td>
<td>valuation pressure and risk appetite, non financial imbalances, financial vulnerabilities, spillovers and contagion indicators</td>
<td>bank credit; debt service; house prices; total credit; current account; equity prices</td>
</tr>
<tr>
<td><strong>Aggregation Focus</strong></td>
<td>euro area aggregate</td>
<td>country-level</td>
</tr>
<tr>
<td><strong>Time Period</strong></td>
<td>from 2000</td>
<td>from 1970</td>
</tr>
<tr>
<td><strong>Method</strong></td>
<td>partial quantile regression</td>
<td>weighted average of 6 best-performing univariate early warning indicators</td>
</tr>
</tbody>
</table>

Source: ECB Financial Stability Review (2018), May
... suggest systemic risk contained for both near- and medium-term

Near term financial stability risk index and current stress
Jan. 2011 – May 2018; Q1 2011 – Q4 2017

Cyclical systemic risk buildup for euro area countries
Q1 1980 – Q4 2017, median and interquartile range

Sources: Bloomberg, ECB, Eurostat and ECB calculations.
2 – Surveillance and assessment

Sovereign debt dynamics

10-year government bond yields and credit ratings of euro area sovereigns
Ratings, percentages per annum

General government debt-to-GDP ratios across the euro area
percentages of GDP

Sources: Standard & Poors, Moody’s, Fitch, ECB and ECB calculations.
Notes: The rating score represents the average rating by the three major rating agencies, Moody’s, Standard & Poor’s and Fitch. The bond yields indicate the long-term interest rate for convergence purposes (secondary market yields of government bonds with maturities of ten, or close to ten, years).

Sources: European Commission (AMECO Database) and ECB calculations.
Marked shift towards market-based financing

Share of debt securities issued in total market-based (debt securities issued) and bank (MFI loans) financing (Q2 2008, Q4 2017; percentages based on outstanding stocks)

Sources: ECB euro area accounts and ECB calculations. Note: Figures for Spain do not include debt issuance through financial subsidiaries which account for a significant part of the debt securities funding of large corporates.
Government and corporate bond yields compressed

**Long-term government bond yields, nominal GDP growth expectations and term premia in the euro area** Jan. 1991 – Apr. 2018; monthly data, percentages per annum, annual percentage changes

Sources: Thomson Reuters Datastream, Consensus Economics and ECB calculations

Notes: Before 1999, the euro area bond yields are approximated by ten-year bond yields in Germany. The euro area term premia estimates (based on ten-year OIS rates) use an affine term structure model following the methodology used by Joslin, S., Singleton, K.T. and Zhu, H., “A New Perspective on Gaussian Dynamic Term Structure Models”, Review of Financial Studies, Vol. 24(3), March 2011, pp. 926-970.

**Excess bond risk premia on euro area investment grade and high yield bonds**

Jan. 2004 – Apr. 2018; basis points

Sources: iBoxx and Moody’s

Notes: The excess bond premium (EBP) is defined as the deviation of credit spreads from measures of credit risk and liquidity risk at individual bond level. The series represent averages from two ECB models.
Real estate valuation metrics contained

Residential property prices at the euro area level: deviations from estimated fair value
Q1 2003 – Q4 2017, percentages, average valuations, minimum-maximum range across valuation estimates

Sources: ECB and ECB calculations.

Notes: The fair value estimations are based on four different methods: the price-to-rent ratio, the price-to-income ratio and two model-based methods, i.e. an asset pricing model and a new model-based estimate (BVAR). The average is based on the price-to-income ratio and the new model-based method. For details of the methodology, see Box 3 in Financial Stability Review, ECB, June 2011, as well as Box 3 in Financial Stability Review, ECB, November 2015.
Near doubling in bank profitability, as solvency strengthens further

Decomposition of the change in euro area significant banks’ aggregate return on equity (2016-17; percentage points)

<table>
<thead>
<tr>
<th>Component</th>
<th>2016</th>
<th>2017</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROE 2016</td>
<td>1.8</td>
<td>5.0</td>
<td>3.2</td>
</tr>
<tr>
<td>net interest income</td>
<td>0.5</td>
<td>0.5</td>
<td>0.0</td>
</tr>
<tr>
<td>net fee and commission</td>
<td>0.6</td>
<td>0.6</td>
<td>0.0</td>
</tr>
<tr>
<td>operating costs</td>
<td>0.2</td>
<td>0.2</td>
<td>0.0</td>
</tr>
<tr>
<td>impairments</td>
<td>0.1</td>
<td>0.1</td>
<td>0.0</td>
</tr>
<tr>
<td>taxes/other items</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>equity</td>
<td>0.6</td>
<td>0.6</td>
<td>0.0</td>
</tr>
<tr>
<td>ROE 2017</td>
<td>7.0</td>
<td>6.0</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Sources: ECB supervisory data and ECB calculations.
Notes: Based on a balanced sample of 112 SIs (adjusted for mergers and acquisitions). Green and red bars denote positive and negative contributions respectively.

Decomposition of changes in euro area significant institutions’ aggregate fully loaded CET1 ratios in 2016 and 2017 (2016-2017; percentage points)

<table>
<thead>
<tr>
<th>Component</th>
<th>2016</th>
<th>2017</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>retained earnings</td>
<td>-1.0</td>
<td>-0.5</td>
<td>-0.5</td>
</tr>
<tr>
<td>other CET1 capital</td>
<td>0.0</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>average risk weight</td>
<td>1.0</td>
<td>0.5</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Sources: ECB and ECB calculations.
Notes: Changes in average risk weight and total assets are shown with the opposite sign as their decline (increase) indicates a positive (negative) contribution to the capital ratios. Based on a balanced sample of 89 SIs. Countries most affected by the crisis include Cyprus, Greece, Ireland, Italy, Portugal, Slovenia and Spain.
2 – Surveillance and assessment

Scenario analysis suggests bank resilience

Distribution of banks’ assets by CET1 capital ratio percentages

Source: ECB calculations.
2 – Surveillance and assessment

Continued expansion of the euro area nonbank sector

Assets of the non-bank financial sector
(Q1 1999 – Q4 2017, € trillions, percentage of total assets of the financial sector)

Sources: ECB (euro area accounts and balance sheet data of individual sectors) and ECB calculations. Notes: A breakdown of data for investment funds, money market funds, financial vehicle corporations, and insurance corporations and pension funds is available only from the indicated dates onwards. Remaining OFIs (sometimes also referred to as the “OFI residual”) refer to non-monetary financial corporations excluding the sectors depicted in the chart (where data for these sectors are available).
Assessment: Stylised layers of interconnectedness

1: Shock to a systemically important institution

2: Impact on counterparties

3: Constraints on credit to the economy

4: Contagion to the global financial system

5: Feedback effects into the banking system

Source: ECB.
### Agenda

1. Preliminaries
2. Surveillance and assessment
3. Policy
4. Institutional aspects
Rubric

Risk surveillance & assessment

Policy design & instrument selection

Policy implementation issues

Tasks
- Identify sources of risks
- Assess financial system vulnerability
- Prioritise risks
- Review financial stability indicators (Systemic Risk Indicators, Risk dashboards)
- Extract early warning signals
- Conduct stress tests
- Assess interconnectedness

Objectives
- Address identified risks with most effective instruments
- Account for multiple dimensions of policy objectives
- Select from available instruments
- Calibrate instruments
- Assess costs & benefits, including possible leakages and spillovers

Institutional structure
Policy decision and implementation
Communication

Policy assessment feeds back to risk monitoring and analysis
Financial regulation: Designing a safer financial system

**Crisis Prevention**
- BASEL III
- Financial Stability Board’s recommendations on asset management

**Crisis Management**
- Financial Stability Board’s TLAC
- FSB key attributes of effective resolution regimes

**EUROPEAN UNION**
- CRD IV rules
- European Systemic Risk Board (ESRB)
- European Supervisory Agencies (ESAs)

**EURO AREA**
- Single Supervisory Mechanism (SSM)

**GLOBAL**
- Bank Recovery and Resolution Directive (BBRD)
- Deposit Guarantee Scheme
- Deposit Guarantee Scheme
- Single Resolution Mechanisms (SRM)
# Macroprudential policy: Legal basis for broad set of instruments

<table>
<thead>
<tr>
<th>Capital based measures</th>
<th>CRD IV Tools</th>
<th>CRR Tools</th>
<th>Other Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Countercyclical capital buffer (CCB)</td>
<td>• Risk weights for real estate sector and intra-financial sector exposures</td>
<td>• Leverage ratio</td>
<td></td>
</tr>
<tr>
<td>• Systemic risk buffer (SRB)</td>
<td>• Capital conserv. buffer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• G-SII &amp; O-SII capital buffer</td>
<td>• Own funds level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquidity-based measures</td>
<td>• Liquidity requirements</td>
<td>• Non-stable funding levy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Large exposure limits (incl. intra-financial sector)</td>
<td>• LTD ratio caps</td>
<td></td>
</tr>
<tr>
<td>Borrower-based measures</td>
<td></td>
<td>• LTV ratio caps</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• LTI ratio caps</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• DSTI ratio caps</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• DTI ratio caps</td>
<td></td>
</tr>
<tr>
<td>Other measures</td>
<td>• Large exposure limits (incl. intra-financial sector)</td>
<td>• Margin and haircuts requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Disclosure requirements</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Can be used by national authorities and the ECB (for SSM countries)

Can only be used by national authorities

**Role of the ECB:** Foster consistent implementation in SSM countries with ‘top-up’ powers to apply more stringent measures to address systemic risks
Macroprudential policy: Selection of instruments

- **Objective:** Address identified risks with most effective instruments (given that more than one instrument may be available)

- Multiple dimensions:
  - Economic, cross-border and legal aspects

- Role of the ECB
  - Analyze interaction of risks at national and European level
  - Ensure consistent cross-country risk assessment
  - Coordinate national policies and consider cross-border spill-overs
  - Collective mechanism to overcome inaction bias
Macroprudential policy: Economic aspects

**Activation**
- Identify and consider financial cycle
- Match available instruments to identified risks
- Consider implementation and transmission lags

**Effectiveness**
- Ensure robust transmission of instrument
- Account for cross-country heterogeneous transmission
- Account for risks of leakages
- Consider combination of macroprudential instruments and/or coordination with other policies

**Efficiency**
- Carry out cost-benefit analysis
Stylised depiction of relative strength of instruments

Enhancing resilience of financial system

Smoothing of financial cycle

Borrower-based measures:
- DSTI
- LTV
- LTI/DTI

Capital-based measures:
- CCB
- Risk Weights
- Leverage Ratio
- G-SIB O-SII

Policy

Risk Weights

Leverage Ratio

G-SIB O-SII
## Agenda

<table>
<thead>
<tr>
<th></th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Preliminaries</td>
</tr>
<tr>
<td>2</td>
<td>Surveillance and assessment</td>
</tr>
<tr>
<td>3</td>
<td>Policy</td>
</tr>
<tr>
<td>4</td>
<td>Institutional aspects</td>
</tr>
</tbody>
</table>
Rubric
Risk surveillance & assessment
Policy design & instrument selection
Policy implementation issues

Objectives
Identify sources of risks
Assess financial system vulnerability
Prioritise risks

Address identified risks with most effective instruments
Account for multiple dimensions of policy objectives

Tasks
Review financial stability indicators (Systemic Risk Indicators, Risk dashboards)
Extract early warning signals
Conduct stress tests
Assess interconnectedness

Select from available instruments
Calibrate instruments
Assess costs & benefits, including possible leakages and spillovers

Institutional structure
Policy decision and implementation
Communication

Make calibrated instruments operational
Prepare legal provisions
Implement measures
Analyse effectiveness of implemented measures

Policy assessment feeds back to risk monitoring and analysis
Micro- and Macroprudential Mandate of the ECB

- **Treaty on the Functioning of the European Union** (Article 127(6))
  “The [European] Council, acting by means of regulations [...] may [...] confer specific tasks upon the European Central Bank concerning policies relating to the prudential supervision of credit institutions and other financial institutions with the exception of insurance undertakings.”

- **SSM Regulation** (Council Regulation No 1024/2013 Art. 5)
  - National authorities preserve macroprudential powers
  - ECB can top-up national macroprudential measures
  - ECB can act on its own initiative and upon the request from national authorities
4 – Institutional aspects

EU Oversight

**Microprudential supervision**

- European System of Financial Supervision
  - European Banking Authority
  - European Insurance and Occupational Pensions Authority
  - European Securities and Markets Authority
  - National supervisors (including supervisory colleges and SSM)
    - Ensure EU-wide technical supervisory standards
    - Coordination of supervisors

**Macroprudential oversight**

- European Systemic Risk Board
  - ECB
  - National central banks
  - European Supervisory Authorities
  - European Commission

- Issue risk warnings and macro-prudential recommendations
4 – Institutional aspects

Tasks of the ECB and the national supervisory authorities

**EU level**

- **ECB**
  - Price stability
  - Financial stability
  - Direct supervision
    - Single supervisory approach
  - ~120 significant banks in EMU
  - Supervisory framework
    - Single set of standards
  - Support ECB (e.g. joint teams)
    - Prepare sovereign acts

- **SSM**

**National level**

- **National supervisory authorities**
  - Direct supervision from
    - (national authority)
    - **Indirect supervision** (from ECB)
  - Accountability
  - Less significant banks (~4500) in EMU

- **National parliaments**

Source: Adapted from Deutsche Bundesbank.
Macroprudential policy in the EU

**ESRB**
- Responsible for macroprudential oversight within EU
- Integrity of the single market

**National macroprudential authorities**
- Risk analysis
- Implementation of macroprudential measures

**ECB as key SSM institution**
- Coordination and co-shaping of macroprudential policies in SSM countries
- ECB may apply higher capital requirements and more stringent measures

**Interactions:**
- Notification procedure
- Objection procedures
- Early Warning and Recommendation
## National macroprudential mandates

| **A clear objective** | • To overcome inaction bias  
|                       | • Ultimate objective: safeguarding the stability of the financial system |
| **Clear tasks and powers** | • (At a minimum) identifying, monitoring and assessing risks to financial stability and implementing policies to achieve its objective |
| **Transparency** | • Macroprudential policy decisions should be made public in a timely manner  
|                       | • The power to make public and private statements on systemic risk |
| **Accountability and independence** | • Ultimately accountable to the national parliament |
| **The relevant role of the Central Banks** | • NCBs should have a leading role in macroprudential oversight because of their expertise and their existing responsibilities in the area of financial stability |
| **Cooperation mechanisms with the ESRB** | • Allow for adequate follow-up to ESRB risk warnings and recommendations |

Policy Decision - “Guided Discretion” principle

**Guidance** through rule-based approach helps overcome the inaction bias when thresholds of early warning signals are breached.

**Discretion** is needed as indicators and thresholds cannot fully capture all aspects of identified risks.

**Judgement** firmly anchored by a clear set of principles supported by additional indicators and their thresholds.
Preparing macroprudential policy decisions in the SSM

**Financial Stability Committee (FSC)**
- Assess risks and elaborate proposals
- Technical groups (MPAG, MPPG)

**Supervisory Board**
- Submits draft proposal for decision

**Governing Council**
- Final ECB decision

Subject to non-objection procedure
Communication trade-offs

- Audience
- Timing
- Credibility
- Frequency
Paul Hiebert
Directorate General Macroprudential Policy and Financial Stability

Financial Stability and Macroprudential Policy

ECB Central Banking Seminar
Frankfurt am Main, 9 July 2018

The views expressed are those of the presenter and not necessarily those of the ECB.