Macroprudential Policy in the EU and the euro area
Overview

1. The Institutional Framework

2. Macroprudential oversight in the euro area

3. Experience with macroprudential policy in the EU

4. Concluding remarks
1. The Institutional Framework

EU Oversight

Micro-prudential 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 macroprudential recommendations

President of the Economic and Financial Committee (non-voting)
National Supervisors (non-voting)
1. The Institutional Framework

Macro- and Microprudential Mandates 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 / Macroprudential Part** (Regulation 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

⇒ ECB has full range of supervisory powers
1. The Institutional Framework

Tasks of the ECB and the national supervisory authorities

**EU level**

- **ECB**
  - Price stability
  - Financial stability

- **SSM**

- Accountability

**Direct supervision**

- Single supervisory approach

~120 significant banks in EMU

**National level**

- **National supervisory authorities**

- Accountability

- **National parlaments**

**Support ECB (e.g. joint teams)**

- prepare sovereign acts

**Direct supervision from**

- (national authority)
- **Indirect supervision**
  - (from ECB)

Less significant banks (~4500) in EMU

Source: Adapted from Deutsche Bundesbank.
# Legal basis of macro-prudential instruments in Europe

<table>
<thead>
<tr>
<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</td>
<td>• LTV ratio caps</td>
</tr>
<tr>
<td>• Systemic risk buffer (SRB)</td>
<td>• real estate sector (residential&amp;commercial)</td>
<td>• LTI ratio caps</td>
</tr>
<tr>
<td>• G-SII and O-SII capital buffer</td>
<td>• Intra financial sector exp.</td>
<td>• LTD ratio caps</td>
</tr>
<tr>
<td></td>
<td>• Liquidity requirements</td>
<td>• DSTI ratio caps</td>
</tr>
<tr>
<td></td>
<td>• Large exposure limits</td>
<td>• DTI ratio caps</td>
</tr>
<tr>
<td></td>
<td>• Public disclosure requirements</td>
<td>• Levy on non-stable funding</td>
</tr>
<tr>
<td></td>
<td>• Level of own funds</td>
<td>• Margin and haircuts requirements</td>
</tr>
<tr>
<td></td>
<td>• Level of capital conservation buffer</td>
<td>• Leverage ratio</td>
</tr>
</tbody>
</table>

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

Can only be used by national authorities
1. The Institutional Framework

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
- Notification procedure
- Early Warning and Recommendation
### Overview

1. The Institutional Framework
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4. Concluding remarks
2. Macroprudential Oversight Process

**Risk surveillance & assessment**
- 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

**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
2. Macroprudential Oversight Process – Risk surveillance and Assessment

Risk surveillance & assessment

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### Potential sources of systemic risks – influences the choice of policy instruments

#### Exogenous risks
- **Macroeconomic disturbances**
  - Macroeconomic shocks
  - Macroeconomic imbalances
- **Event risk**
  - Political risk
  - Natural disasters

#### Endogenous risks
- **Institution-based**
  - Financial (credit, market, liquidity) risk
  - Concentration risk
  - Reputational and operational risk
- **Market-based**
  - Asset price misalignments
  - Counterparty and contagion risk
  - Market runs
- **Market infrastructure-based**
  - Clearance
  - Payment and settlement risk
  - Infrastructure fragility
2. Macroprudential Oversight process – Risk Surveillance and Assessment

**Surveillance**

- **Systemic Risk Indicators (SRI):** Market-based indicators of probability of an adverse systemic event
- **Early Warning Signal (EWS):** Early identification of imbalance build-up

**Assessment**

- **Macro stress testing:** Institution-specific top-down macro stress test to assess impact of severe but plausible macro-financial scenarios and to rank risks by potential losses (likelihood and impact)
- **Network and spillover analysis**
  Map interconnection of financial system to assess potential transmission channels of risks.

**References:**
- ECB Financial Stability Reviews
- Alessi and Detken (2011, EJPE)
- Dees / Henry / Martin (eds., 2017)
Surveillance: Systemic Risk Indicator (SRI)

Probability of a simultaneous default of two or more large EU banks

(in percentage)

Surveillance: Early Warning Signal (EWS)

Global credit gap and optimal early warning threshold

(in percentage)

Source: ECB and ECB calculations. Last observation 2016Q4.
Note: Global credit to GDP gap - OECD 18 countries: Gap indicator for 18 OECD countries (see Alessi and Detken (2011)).
Global credit to GDP gap - 39 countries (incl. China): Gap indicator for 39 countries including BRIC (see Alessi, Detken and Oprica (ECB forthcoming))
Assessment: Macro Stress Testing

A. Balance sheet and Profit & Losses tool ⇒ Solvency

B. Dynamic adjustment model

C. Macro feedback models

Macroprudential policy measure (e.g. Capital Buffer, ΔRisk Weights, Large Exposure limits)

2. Macroprudential Oversight Process – Risk Surveillance and Assessment

Assessment: Interconnectedness

1: Shock to a systemically important institution
2: Impact on counterparties in the interbank market
3: Constraints on credit to the economy
4: Contagion to the global financial system
5: Feedback effects into the banking system

Source: ECB.
2. Macroeconomic Oversight Process – Policy Design

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Economic aspects – cross-country heterogeneity

Measure of financial cycles summarize credit and asset price cycles

**Euro area countries financial cycles**

(deviation from historical median)

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Notes: All variables deflated by HICP. Cycles are measured as deviations from historical median, which is equal to 0.5. CEPR recessions shown from the quarter following the peak through the quarter of the trough (i.e. the peak is not included in the recession shading, but the trough is).
Relative strength of instruments

2. Macroprudential Oversight Process – Policy Design

Smoothing of financial cycle

Enhancing resilience of financial system

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

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

Enhancing resilience of financial system

Smoothing of financial cycle

Risk Weights
- Leverage Ratio
- G-SIB O-SII

Enhancing resilience of financial system
## Relative strength of instruments

<table>
<thead>
<tr>
<th>Capital-based measures (e.g. CCB)</th>
<th>Curbing the financial cycle</th>
<th>Enhancing resilience</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Impact</strong>: Higher funding costs which intermediaries pass through to lending rates and quantities. Measures may be insufficient to discourage risky lending: <em>Basten &amp; Koch</em> (2015). <em>Uluc &amp; Wiedalek</em> (‘15): 1pp capital $\rightarrow$ -5.4% loans.</td>
<td>?</td>
<td><strong>Effective</strong>&lt;br&gt;<strong>Impact</strong>: Higher loss absorption (implementation lags less of an issue). BCBS (2010): a 1pp. rise in capital requirements reduces the likelihood of systemic crises by 20–50%</td>
</tr>
</tbody>
</table>
2. Macroprudential Oversight Process – Policy Design

Case study: selection of instruments to combat overheating real estate markets

- **Capital-based** tools act on **mortgage supply**: to absorb losses when household defaults materialise
- **Liquidity-based** tools act on **funding conditions**: to act on funding stability for long-term real estate financing
- **Borrower-based** tools act on **mortgage demand**: to reduce probabilities of default or reduce loss-given default

<table>
<thead>
<tr>
<th>Instrument class</th>
<th>Instrument considerations (broad to narrow)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Capital-based</strong></td>
<td>- All credit exposures</td>
</tr>
<tr>
<td>Raise capital</td>
<td>requirements</td>
</tr>
<tr>
<td></td>
<td>- Mortgage loans (&quot;sectoral&quot; capital requirements)</td>
</tr>
<tr>
<td></td>
<td>- Loans with high LTV (&quot;sectoral&quot; risk weights)</td>
</tr>
<tr>
<td><strong>Liquidity-based</strong></td>
<td>- Loan-to-Deposit ratio (LTD)</td>
</tr>
<tr>
<td>Influence funding</td>
<td>conditions</td>
</tr>
<tr>
<td></td>
<td>- Loan-to-core funding ratio</td>
</tr>
<tr>
<td><strong>Borrower-based</strong></td>
<td>- All mortgage loans</td>
</tr>
<tr>
<td>Limit loan-to-value</td>
<td>- First-buyer, loan-occupier,</td>
</tr>
<tr>
<td>/ loan-to-income</td>
<td>to-let loans, foreign buyer</td>
</tr>
<tr>
<td>ratios</td>
<td></td>
</tr>
</tbody>
</table>
2. Macroeconomic and monetary stability

2.1. Macroeconomic stability

2.2. Monetary stability

2.3. Macroprudential oversight process – Policy Implementation Issues

Risk surveillance & assessment

- Identify sources of risks
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Tasks
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Policy assessment feeds back to risk monitoring and analysis
Policy Decision
Preparing macroprudential decisions in the SSM


Financial Stability Committee (FSC) (chaired by ECB Vice-President)
• Assess risks and elaborate proposals
• Technical groups (MPAG, MPPG)

Governing Council
• Makes informal recommendation on submitted FSC proposal

Supervisory Board
• Submits draft proposal for decision

Governing Council
• Final ECB decision

Subject to non-objection procedure
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.
| 1 | The Institutional Framework |
| 2 | Macroprudential oversight in the euro area |
| 3 | Experience with macroprudential policy in the EU |
| 4 | Concluding remarks |
### 3. Experience with macroprudential policy in the EU

#### Macropudential policy measures in the EU since the late 1990s

<table>
<thead>
<tr>
<th>Country</th>
<th>Capital measures</th>
<th>Liquidity measures</th>
<th>Creditworthiness of borrowers</th>
<th>Restrictions on mortgage lending</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Counter cyc. risk weights</td>
<td>Provisioning measures</td>
<td>Reserve requirements</td>
<td>FC liquidity requirement</td>
</tr>
<tr>
<td>Belgium</td>
<td>X</td>
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<td>X</td>
<td>X</td>
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<tr>
<td>Bulgaria</td>
<td>X</td>
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<td>X</td>
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<td>Croatia</td>
<td>X</td>
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<td>Denmark</td>
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<td>Estonia</td>
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<td>Greece</td>
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<td>Hungary</td>
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<td>Ireland</td>
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<td>Latvia</td>
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<td>Lithuania</td>
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<tr>
<td>Netherlands</td>
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<tr>
<td>Norway</td>
<td>X</td>
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<td>Poland</td>
<td>X</td>
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<td>Romania</td>
<td>X</td>
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<td>Slovakia</td>
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<td>Slovenia</td>
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<tr>
<td>Spain</td>
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<td>Sweden</td>
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<tr>
<td>Switzerland</td>
<td>X</td>
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<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Sources: Vandenbussche et al., op. cit.; Shim et al., op. cit. and national authorities.

Notes: 1) A dot (*) indicates a measure related to foreign currency. 2) Refers to a maximum ratio of foreign loans to own funds. 3) The dot for Croatia refers to mortgage, consumer and corporate loans. The dot for Poland refers to mortgage loans only.

Source: Kok et al (2014)
3. Experience with macroprudential policy in the EU

Housing market imbalances since the mid-1990s

- House price and mortgage booms were at the heart of European macroprudential policies in the late 1990s and 2000s
- House price evolutions illustrate the importance of global as well as national determinants
- FX loans were an important aspect of the boom in CEE EU countries

Source: Kok et al (2014)
LTVs were used in a number of EU countries

- Impact on house prices and credit growth rather heterogeneous
- Measures may have been used too late and too cautiously in many countries

Source: ECB
Notes: The x axis shows the deviation in quarters, from the quarter when the LTV cap was introduced. Data refer to single family house prices.

Source: Kok et al (2014)
Foreign currency lending was a key ingredient of the credit boom in CEE countries in the 2000s

Source: Kok et al (2014)
3. Experience with macroprudential policy in the EU

Impact of macroprudential measures to curb FX lending

- Measures tended to be effective in curbing FX lending
- Frequent weakening of impact shortly after implementation due to regulatory evasion
- Measures became more forceful over time – including outright bans of FX loans in some countries
- (First) ESRB recommendation was helpful to galvanise policy efforts

Source: Kok et al (2014)
3. Experience with macroprudential policy in the EU

Developments since the launch of SSM (Nov 2014)

Implementation of macroprudential measures

- There has been no activation of ECB macroprudential policy so far!
- Macroprudential policy has been actively used at the national level (with ECB coordination):
  - **Capital-based measures** (G-SII and O-SII buffers) have been implemented in many SSM countries
  - **Borrower-based measures** activated in some countries to enhance household sector resilience and to curb the excessive build up of real estate imbalances
- Inaction bias seems to wane – due to lessons from the crisis or the ECB’s top-up power?
- Economy has been relatively subdued in most (not all!) euro area countries
- The real test for macroprudential policy in the euro area is still to come
3. Concluding remarks

Developments since the launch of SSM (Nov 2014)

Building up the ‘macroprudential infrastructure’

- Development of a database of macroprudential measures (building on IMF database)
- Data sharing agreement with microprudential supervisor (SSM)
- Regular meetings between ECB and NCAs to discuss systemic risks and possible macroprudential responses
- Enlarging and enhancing the toolkit to assess macroprudential policy
  - STAMP€, integrated approach to conduct macroprudential stress tests (Dees / Henry / Martin Eds. 2017)
  - ‘3D Model’ to assess capital-based measures – DSGE framework allowing for defaults of banks, NFCs and households (Clerk et al. 2015)
  - IDHBS model to assess borrower-based instruments – leveraging on the Household Finance and Consumption Survey (Gross and Poblacion 2016)
<table>
<thead>
<tr>
<th>1</th>
<th>The Institutional Framework</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Macroprudential oversight in the euro area</td>
</tr>
<tr>
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<tr>
<td>4</td>
<td>Concluding remarks</td>
</tr>
</tbody>
</table>
4. Concluding remarks

- Macroprudential policy in the EU / euro area is rapidly developing but in (large) parts still untested

- It is a very important supplementary policy tool for EMU, bridging the ‘gap’ between common monetary and (largely) country–specific fiscal and structural policies

- Experience in the EU so far suggests that
  - Granular, targeted and complete macroprudential instrument toolkit provides most appropriate way for staving off financial stability risks
  - Risks of cross-border leakages within EU / euro area calls for coordinated international approach
  - Risks of cross-sectoral leakages call for macroprudential instruments also for non-bank institutions and for trading activities

- Coordination between ECB and NCAs and between micro- and macroprudential supervisors are key!
Background slides
Capital-based instruments

Announcements by National Authorities for gradual implementation until 2019. To date countercyclical capital buffer of 0.5% announced for Slovakia.

<table>
<thead>
<tr>
<th>SSM countries</th>
<th>Global systemically important institutions</th>
<th>Other systemically important institutions</th>
<th>Systemic Risk Buffer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td></td>
<td>7 banks: 1% - 2%</td>
<td>12 banks: 1.0-2.0%</td>
</tr>
<tr>
<td>Belgium</td>
<td></td>
<td>8 banks: 0.75 -1.5%</td>
<td></td>
</tr>
<tr>
<td>Cyprus</td>
<td></td>
<td>6 banks: 0.125% - 0.5%</td>
<td></td>
</tr>
<tr>
<td>Estonia</td>
<td></td>
<td>2 banks: 2%</td>
<td>All banks: 1.0%</td>
</tr>
<tr>
<td>Finland</td>
<td></td>
<td>3 banks: 0.5% - 2%</td>
<td></td>
</tr>
<tr>
<td>France</td>
<td>4 banks: 1%-2%</td>
<td>6 banks: 0.25% - 1.5%</td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>1 bank: 2%</td>
<td>14 banks: 0.5-2%</td>
<td></td>
</tr>
<tr>
<td>Greece</td>
<td></td>
<td>4 banks: 0.25%</td>
<td></td>
</tr>
<tr>
<td>Ireland</td>
<td></td>
<td>7 banks: 0%</td>
<td></td>
</tr>
<tr>
<td>Italy</td>
<td>1 bank: 1%</td>
<td>3 banks: 0.13% - 0.5%</td>
<td></td>
</tr>
<tr>
<td>Latvia</td>
<td></td>
<td>6 banks: 1.75% - 2%</td>
<td></td>
</tr>
<tr>
<td>Lithuania</td>
<td></td>
<td>4 banks: 0.5% - 2%</td>
<td></td>
</tr>
<tr>
<td>Luxembourg</td>
<td></td>
<td>6 banks: 0.5% - 1%</td>
<td></td>
</tr>
<tr>
<td>Malta</td>
<td></td>
<td>3 banks: 0.5% - 2%</td>
<td></td>
</tr>
<tr>
<td>Netherlands</td>
<td>1 bank: 1%</td>
<td>5 banks: 1% - 2%</td>
<td>3 banks: 3.0% (overlap with O-SII)</td>
</tr>
<tr>
<td>Portugal</td>
<td></td>
<td>6 banks: 0.25% - 1%</td>
<td></td>
</tr>
<tr>
<td>Slovakia</td>
<td></td>
<td>5 banks: 1% - 2%</td>
<td>4 banks: 1% - 2%</td>
</tr>
<tr>
<td>Slovenia</td>
<td></td>
<td>8 banks: 0.25% - 1%</td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td>1 bank: 1%</td>
<td>6 banks: 0.25% - 1%</td>
<td></td>
</tr>
</tbody>
</table>

Background: Measures that have been taken in the euro area
Background: Measures that have been taken in the euro area

## Borrower-based instruments

LTV and DSTI/LTI activated or adjusted jointly, sometimes with maturity cap

<table>
<thead>
<tr>
<th>Country</th>
<th>LTV limits (reduces LGD)</th>
<th>Income-based limits (reduces PD)</th>
<th>Max. maturity restriction (reduces long-term interest rate sensitivity)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyprus</td>
<td>70%, 80%</td>
<td>DSTI: 80% (65% in case of FX loans)</td>
<td></td>
</tr>
<tr>
<td>Estonia</td>
<td>85%, 90%</td>
<td>DSTI: 50%</td>
<td>30 years</td>
</tr>
<tr>
<td>Finland</td>
<td>90%, 95%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ireland</td>
<td>70%, 80%, 90%</td>
<td>New loans with LTI &gt;3.5 cannot exceed 20% of portfolio</td>
<td></td>
</tr>
<tr>
<td>Latvia</td>
<td>90%, 95%</td>
<td>Internal DSTI limits</td>
<td></td>
</tr>
<tr>
<td>Lithuania</td>
<td>85%</td>
<td>DSTI: 40%-60% w/ interest rate sensitivity test at origination</td>
<td>30 years</td>
</tr>
<tr>
<td>Netherlands</td>
<td>101% (1pp decline p.a. to 100% in 2018)</td>
<td>DSTI: 10-38%</td>
<td>30 years</td>
</tr>
<tr>
<td>Slovakia</td>
<td>80%, 90%, 100%</td>
<td>80% (subject to 2 p.p. interest rate increase p.a. if interest rate is not fixed)</td>
<td>30 years (8 years for unsecured loans)</td>
</tr>
</tbody>
</table>

Note: Measures as of 1 Jan 2017.