The goal of macroprudential policies is to reduce systemic risk. Systemic risk is the risk of widespread disruptions to the provision of financial services with adverse consequences for the real economy.

Macroprudential policy focuses on the interactions between financial institutions, markets, infrastructure and the real economy.

While microprudential policy takes the rest of the financial system and the economy as given in assessing the risk of individual institutions, macroprudential policy considers risks to be endogenous.
Prudential and preemptive macroprudential policies

- Macroprudential policy has two aims:
  1. *Strengthen the resilience of the financial system* to economic downturns and other adverse aggregate shocks
  2. *Lean against the financial cycle* by limiting the build-up of financial risks to reduce the probability or magnitude of a financial bust

- These aims are not mutually exclusive
- Both go beyond the purpose of microprudential policy with its focus on individual firms
- Macroprudential policy takes risk factors into account that extend further than the circumstances of individual firms
Macroprudential instruments

- Three types of instruments:
  1. *Capital-based tools* (countercyclical capital buffers, sectoral capital requirements and dynamic provisions)
  2. *Liquidity-based tools* (countercyclical liquidity requirements)
  3. *Asset-side tools* (loan-to-value (LTV) and debt-to-income (DTI) ratio caps)

- Macroprudential instruments can be defined as prudential tools that are calibrated to target one or more sources of systemic risk, such as excessive leverage, excessive liquidity mismatches, too much reliance on short-term funding or interconnectedness
Stylized scenarios to determine the appropriate timing to activate or deactivate macroprudential instruments

<table>
<thead>
<tr>
<th>Other macro conditions</th>
<th>Financial cycle</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Boom</td>
</tr>
<tr>
<td></td>
<td>With crisis</td>
</tr>
<tr>
<td>Strong</td>
<td>Tighten (Scenario 1)</td>
</tr>
<tr>
<td>Weak</td>
<td>Leave unchanged or tighten (Scenario 2)</td>
</tr>
</tbody>
</table>
1. Indicators include macro variables, financial sector indicators, markets based indicators, and qualitative information

2. Assessment of the empirical robustness of candidate indicators to guide the build-up or activation of specific MPIs

3. The release phase: policymakers have to assess whether there is a downswing in the financial cycle and whether there is a crisis or not
   - When crises emerge, market-based indicators have an important role to play
   - In addition, detailed analysis of banks’ balance sheets and supervisory information is warranted to judge whether system-wide stress is about to materialize
<table>
<thead>
<tr>
<th>Policy instrument</th>
<th>Potential indicator</th>
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</thead>
<tbody>
<tr>
<td>Countercyclical capital buffers</td>
<td>• Measures of the aggregate credit cycle</td>
</tr>
</tbody>
</table>
| Sectoral capital requirements | • Measures of the price and quantity of different credit aggregates (stock and new loans) on a sectorial basis: interbank credit, OFIs, non-financial corporate sector and households  
• Measures of sectorial concentrations  
• Distribution of borrowing within and across sectors  
• Real estate prices (commercial and residential, old and newly developed properties)  
• Price-to-rent ratios |
| Countercyclical liquidity requirements | • LCR and NSFR  
• Liquid assets to total assets or short-term liabilities  
• Loans and other long-term assets to long-term funding  
• Loan-to-deposit ratios  
• Libor-OIS spreads  
• Lending spreads |
| Margins and haircuts in markets | • Margins and haircuts  
• Bid-ask spreads  
• Liquidity premia  
• Shadow banking leverage and valuation  
• Market depth measures |
| LTVs and DTIs | • Real estate prices (commercial and residential, old and newly developed properties)  
• Price-to-rent ratios  
• Mortgage credit growth  
• Underwriting standards  
• Indicators related to household vulnerabilities  
• Indicators of cash-out refinancing |
Aggregate indicators around financial crisis

Credit-to-GDP gap

HH credit-to-GDP gap

HH credit growth

Debt service ratio

Residential property price growth

Price-to-rent gap
Price-to-rent gaps and credit-to-GDP gaps for selected countries

Graph 2.2

Price-to-rent gap²

Credit-to-GDP gap³

Australia

Switzerland

Sweden

United Kingdom

In percentage points

Price-to-rent gaps and credit-to-GDP gaps for selected countries

Australia

Switzerland

Sweden

United Kingdom
Assessing the timing, effectiveness, and efficiency of macroprudential policy tools

1. To what extent are vulnerabilities building up or crystallising?
2. How (un)certain is the risk assessment?
3. What is the link between changes in the instrument and the policy objective?
4. How are expectations affected?
5. What is the scope for leakages and arbitrage?
6. How quickly and easily can an instrument be implemented?
7. What are the costs of applying a macroprudential instrument?
8. How uncertain are the effects of the policy instrument?

→ To support answering these questions, report proposes transmission maps for all analysed tools
Transmission map for raising capital requirements

Increase capital requirements

- Voluntary buffers
- Arbitrage away

Options to address shortfall

- Voluntary buffers
- Undertake SEOs
- Assets, especially with high RWA
- Lending spreads
- Dividend and bonuses

Loan market

- Reprice loans
- Credit supply:
  - Credit demand
  - Credit supply

Impact on the credit cycle

- Asset prices
- Leakages to non-banks

Expectation channel

- Loss Absorbency
- Tighter risk management

Increase resilience
Transmission map for raising sectoral capital requirements

Options to address shortfall

Voluntary buffers ↓

Arbitrage away

Undertake SEOs

↓ lending spreads

↓ dividend and bonuses

↓ Assets in sector X

↓ Assets in other sectors

Reprice loans in other sectors

Reprice loans in sector X

↓ credit demand in sector X

↓ credit supply in sector X

↓ credit supply in other sectors

Expectation channel

↑ Loss Absorbency

Tighter risk management

Loan market

Increase capital requirements for sector X

Impact on the credit cycle

Leakages to non-banks

Asset prices in sector X

Asset prices in other sectors

Credit demand in other sectors

Credit supply in other sectors
Empirical evidence on capital tools

- **Impact on resilience:** The Long-term Economic Impact Assessment (LEI, Basel Committee (2010a)) estimates that a 1 percentage point rise in capital requirements leads to a 20–50% reduction in the likelihood of systemic crises.

- **Impact on the credit cycle:**
  - Several studies suggest that lending spreads could increase between 2 and 20 basis points in response to a 1 percentage point increase in capital ratios.
  - In the short run, banks seem to respond to an increase in target capital ratios by making about a half to three quarters of the required change through an increase in capital and the remainder through a reduction of risk-weighted asset (RWA), of which in turn only half is in the form of reduced lending: This implies that a bank with an initial capital ratio of 8% would decrease its lending by 1.5 to 3% for a 1 percentage point increase in capital requirements.
  - However, around 30–50% of the reduction in bank credit has historically been offset by an increase in lending by unaffected banks and other credit providers.
  - Also, during booms, it is not uncommon for real credit to grow by 15–25%, suggesting that capital-based MPIs would need to be tightened quite significantly to bring credit growth down to more normal levels.

- **Impact on output:** In the short to medium run, the median impact of a 1 percentage point increase in capital requirements decreases annual GDP growth by 0.04 percentage points; in the long run, it is 0.09%.
Empirical evidence on liquidity tools

- **Impact on resilience.** The LEI (Basel Committee (2010a)) estimates that the introduction of the NSFR decreases the likelihood of systemic crises by 10–20%. Furthermore, simulation-based studies show that a cyclical application of LCR requirements can mitigate negative feedback spirals and thus enhance the resilience of the system in stressed conditions.

- **Impact on the credit cycle.** There is evidence that liquidity-based MPIs could be effective in curbing the credit cycle, yet the uncertainty is large, given the scarcity of information; studies assessing the impact of Basel III, as envisaged in 2010, suggest that the introduction of the NSFR could trigger a 14–25 basis point increase in lending spreads; the introduction of the LCR, on the other hand, is estimated to increase spreads by about 15 basis points, while reducing lending volume by approximately 3 percentage points.

- **Impact on output.** With respect to the potential efficiency of liquidity-based MPIs, cost estimates by the LEI suggest that meeting the NSFR reduces steady-state GDP levels by 0.08 percentage points, when the positive impact on the reduction of the frequency and severity of banking crises is not taken into account; the MAG, in turn, estimates that introducing the LCR decreases GDP by 0.8 percentage points, falling to 0.1 percentage points after 8 years.
Transmission map for tighter asset-side tools

Increase resilience

Impact on the credit cycle

Loan market

- Lower LTV or DTI caps
  - Constrain borrowers
  - Arbitrage and leakages to non-banks

Constrain borrowers

- Expectation channel
  - Tighter risk management
  - ↓ PD and LGD of borrowers

↓ credit demand

↓ credit supply

↓ property prices

Increase resilience
Empirical evidence on asset side tools

- **Impact on resilience:** There is evidence that asset-side MPIs increase the resilience of banks by increasing the resilience of borrowers with, several studies finding that tighter LTV caps reduce the sensitivity of households to income and property price shocks.

- **Impact on the credit cycle:** The impact on the credit cycle is less well documented, as relatively few countries have instituted LTV and DTI restrictions in a macroprudential fashion:
  - The available evidence suggests that imposing LTV and DTI caps during booms slows down real credit growth and house price appreciation.
  - One recent study finds, for instance, that tightening LTVs or DTIs tends to reduce real credit growth by 1–2 percentage points and real house price appreciation by 2–5 percentage points; the latter effect on property prices is, however, not as clear-cut in other studies.

- **Impact on output:** An overall efficiency assessment is hampered by the fact that there is no empirical evidence on the costs of asset-side MPIs to the broader economy; In comparison with other MPIs, costs could be more limited, as these tools only affect a specific proportion of borrowers.
The release of macroprudential instruments

- **Release without a crisis:** downturn in the financial cycle, but solvency and liquidity are not questioned for the system as a whole; market constraints are unlikely to be binding; however, given higher loss rates and procyclical measures of risk, banks may still be forced to deleverage excessively unless MPIs are released; the transmission mechanism of such an orderly release is likely to be similar to that in the build-up phase, only in reverse.

- **Release during a crisis:**
  - Crises often start with an initial shock, triggering the realisation that potentially large losses and liquidity demands are imminent; if macroprudential buffers are sufficiently large to absorb these effects, their release could ensure the smooth functioning of the banking system.
  - During a severe crisis, though, losses and liquidity demands would tend to exceed the micro- and macroprudential buffers accumulated by many financial institutions; policy measures that boost the **level** of bank capital and liquidity in the system may be necessary to restore the banking sector to health.

- **Expectations-based effects:** Expectational effects may be especially important for the release phase because of the crucial role of trust and confidence in these situations.
Interaction of macroprudential and monetary policy

- The risk-taking channel of monetary policy is likely to be affected by all MPIs.

- The balance sheet channel of monetary policy may be impacted by asset-side tools and capital-based tools.

- Monetary policy transmission mechanism will tend to overlap with liquidity-based tools, which can affect the demand for central bank liquidity and the ability to steer monetary policy operational targets in line with the intended policy stance.

- There might be scenarios where real and financial developments give rise to conflicting policy prescriptions between monetary and macroprudential objectives.
  - Conflicts may arise when the economy experiences “supply” shocks, such as periods of high productivity growth that put downward pressure on inflation but, at the same time, risk triggering irrational exuberance in financial markets.

- Coordination between monetary and macroprudential policy is essential.