Agenda

1. What is macroprudential policy?
2. Dimensions and indicators of systemic risk
3. Macroprudential policy instruments
4. Macroprudential policy in Norway
5. Norges Bank’s advice on the countercyclical capital buffer
WHAT IS MACROPRUDENTIAL POLICY?
Definition

Macroprudential policy:

- A policy that uses primarily prudential tools to limit systemic or system-wide financial risk, thereby limiting the risk of disruption in the financial system with the potential to have negative consequences the real economy.

- Aims ultimately to reduce the probability and severity of financial crises.
Financial crises are costly... and microprudential supervision not sufficient to prevent them

GDP losses in the EU as a result of the global financial crisis

Source: ESRB
Policy interactions

Source: Adapted from IMF (2013)
Macro- vs microprudential policy
The two perspectives contrasted

<table>
<thead>
<tr>
<th></th>
<th>Macro-prudential</th>
<th>Micro-prudential</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Policy objective</strong></td>
<td>Limit financial system-wide distress</td>
<td>Limit distress of individual financial institutions</td>
</tr>
<tr>
<td><strong>Ultimate goal</strong></td>
<td>Avoid output (GDP) costs due to financial instability</td>
<td>Protect consumers of financial services (depositors, investors, policyholders)</td>
</tr>
<tr>
<td><strong>Characterisation of financial asset risks</strong></td>
<td>Dependent on collective behaviour; endogenous</td>
<td>Independent of individual agents’ behaviour; exogenous</td>
</tr>
<tr>
<td><strong>Correlations and common exposures across financial institutions</strong></td>
<td>Important</td>
<td>Irrelevant</td>
</tr>
<tr>
<td><strong>Calibration of prudential controls</strong></td>
<td>In terms of system-wide risk; top-down</td>
<td>In terms of individual institutions’ risk; bottom-up</td>
</tr>
</tbody>
</table>

Source: Borio (2003).
DIMENSIONS AND INDICATORS OF SYSTEMIC RISK
Structural versus cyclical risk

Macroprudential polices aim to address two dimensions of system-wide risk

1. Cyclical systemic risk: The evolution of system-wide risk over time – the “time dimension”

2. Structural systemic risk: The distribution of risk in the financial system at a given point in time – the “cross-sectional dimension”
Structural risks: Bank assets/GDP

1) All national banks and banking groups including subsidiaries and branches abroad in addition to subsidiaries and branches of foreign banks. Norwegian GDP includes the oil sector.
2) Data for Belgium, Finland and Norway are for 2007, while data for the rest are for 2008.
Sources: ECB, Central Bank of Iceland and Norges Bank
Cyclical risks: The financial cycle

The financial and business cycles in the United States

1 The line traces the financial cycle measured as the average of the medium-term cycle in the component series using frequency-based filters.
2 The line traces the GDP cycle identified by the traditional shorter-term frequency filter used to measure the business cycle.

High credit growth - deeper recession

Real GDP per capita. Percent deviation from the start of the crisis

Source: Jorda, Schularick og Taylor (JMCB, 2013)
Effects on crisis probability of credit and asset prices

Source: Norges Bank
Dimensions of systemic risk

- Excessive credit growth and leverage (in specific sectors)
- Excessive maturity mismatch and market illiquidity
- Large exposures and interconnectedness
- Misaligned incentives / moral hazard

Source: ESRB
Indicators of systemic risk

Dimensions of systemic risk:
1. Excessive credit growth and leverage (in specific sectors)
2. Excessive maturity mismatch and market illiquidity
3. Large exposures and interconnectedness
4. Misaligned incentives / moral hazard

Indicators of systemic risk:
1. Credit-to-GDP gap, leverage, LTV/LTI, real estate prices, household indebtedness
2. Bank funding ratios (e.g. LTD), money market liquidity, liquid assets, asset encumbrance
3. Concentration, large exposures, and financial network indicators
4. Size, interconnectedness, substitutability, complexity of individual institutions

Source: ESRB
MACROPRUDENTIAL POLICY INSTRUMENTS
## Macroprudential policy instruments

<table>
<thead>
<tr>
<th>Counter cyclical capital buffer</th>
<th>Excessive credit growth and leverage</th>
<th>Excessive maturity mismatch and market illiquidity</th>
<th>Exposure concentration</th>
<th>Misaligned incentives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital instruments - leverage ratio</td>
<td>Loan-to-value/loan-to-income caps</td>
<td>Stable funding restrictions (e.g. NSFR, LTD)</td>
<td>Liquidity charges</td>
<td>Large exposure restrictions (by counterparty, sector, geographic)</td>
</tr>
<tr>
<td>by sector (real estate, intra-financial)</td>
<td>Systemic risk buffer</td>
<td>SIFI capital surcharges (G-SII and O-SII buffer)</td>
<td>Systemic risk buffer (SRB)</td>
<td></td>
</tr>
</tbody>
</table>

Source: ESRB
MACROPRUDENTIAL POLICY IN NORWAY
Financial stability
Division of responsibilities

- **The Ministry of Finance**
  - Overriding responsibility for ensuring that Norway has a well functioning financial industry. Plays a key role in coordinating the public response to financial crises.

- **Finanstilsynet (Financial Supervisory Authority of Norway)**
  - Has particular responsibility for solvency, management and control in financial institutions.
  - Has direct supervisory authority over financial sector participants.

- **Norges Bank**
  - Shall promote a robust and efficient financial system.
  - Norges Bank may provide extraordinary liquidity to the banking system.
  - Issues advice on the level of the countercyclical capital buffer in banks.
Macroeconomic backdrop

**GDP mainland**

**Average**

**Unemployment rate (ILO)**

**Key policy rate**

**CPI (core)**

**Introduction of inflation target**
Macroeconomic backdrop: House prices
Index. Q1 1995 = 100

1) Denmark and Spain: up to and including Q2 2014
Source: Thomson Reuters
Macroeconomic backdrop: Sharp increase in household debt

Indexed. 2000=100
Macroeconomic backdrop: Increasing debt burdens

Debt as a share of after-tax income. Age groups. Percent.
New capital regulation framework

Basel committee for banking supervision (Basel III)

EU (Capital Requirements Directive CRD IV/CRR)

EEA Agreement/Norwegian law
CET1 requirements Norwegian banks
Percent of risk weighted assets

- Countercyclical buffer
- Maximum countercyclical buffer
- SIFI-buffer
- Systemic Risk Buffer
- Capital Conservation Buffer
- Minimum requirement

<table>
<thead>
<tr>
<th>Date</th>
<th>Countercyclical buffer</th>
<th>Maximum countercyclical buffer</th>
<th>SIFI-buffer</th>
<th>Systemic Risk Buffer</th>
<th>Capital Conservation Buffer</th>
<th>Minimum requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>31 Dec 2011</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31 Dec 2012</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31 Dec 2013</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Jul 2014</td>
<td>0.0</td>
<td>1.0</td>
<td>2.5</td>
<td>3.0</td>
<td>4.5</td>
<td>4.5</td>
</tr>
<tr>
<td>1 Jul 2015</td>
<td>0.0</td>
<td>1.0</td>
<td>2.5</td>
<td>3.0</td>
<td>4.5</td>
<td>4.5</td>
</tr>
<tr>
<td>1 Jul 2016</td>
<td>0.0</td>
<td>1.0</td>
<td>2.5</td>
<td>3.0</td>
<td>4.5</td>
<td>4.5</td>
</tr>
</tbody>
</table>
Macroprudential policy response
Higher capital requirements for banks and higher risk weights on mortgages

\[ \text{capital adequacy ratio} = \frac{\text{equity}}{\sum_i \text{risk weight}_i \times \text{asset}_i} \]
Norwegian banks’ capital adequacy

Percent

Common Equity Tier 1 capital ratio (with transitional rule)

Common Equity Tier 1 capital / total assets
NORGES BANK’S ADVICE ON THE CCB
Countercyclical capital buffer
Regulation from 4 October 2013

“The purpose of the countercyclical capital buffer is to strengthen the financial soundness of banks and their resilience to loan losses in a future downturn and mitigate the risk that banks will amplify a downturn by reducing their lending.”

“The level [of the buffer] shall ordinarily be between 0 and 2.5 percent”

“The decision basis shall contain an overview of the credit-to-GDP ratio and the extent to which it deviates from the long-term trend, as well as other indicators, and Norges Bank’s assessment of systemic risk that is building up or has built up over time.”
Risk dimensions and the CCB

Systemic risk

Excessive credit and leverage

Structural

Cyclical

Countercyclical capital buffer
Credit as a share of GDP
Percent. 1976 Q1 – 2014 Q2

Sources: Statistics Norway and Norges Bank
Credit as a share of GDP

Percent. 1976 Q1 – 2014 Q2

Sources: Statistics Norway and Norges Bank
Credit/GDP – deviation from trend

Percentage points. 1983 Q1 – 2014 Q2
Reference values for CCB in Norway

Basel “bufferguide”. Per cent of risk weighted assets
Key indicators

Credit / GDP

Real commercial property prices

House prices / disposable income

Banks’ wholesale funding ratio
Estimated crisis probabilities

USA

Norway

Spain

Sweden
MACROPRUDENTIAL POLICY: A PRACTITIONER’S PERSPECTIVE

ECON 4335 ECONOMICS OF BANKING
IDA WOLDEN BACHE
17 NOVEMBER 2014


Logit model for estimating crisis probabilities

- Panel of 16 industrialized countries 1970Q1 – 2013Q2
  - Australia, Belgium, Canada, Finland, France, Germany, Italy, Japan, Korea, Netherlands, Norway, Spain, Sweden, Switzerland, UK and USA

- 28 identified crises

- Explanatory variables
  - Total credit to private non-financial sector, households and non-financial enterprises
  - Nominal and real GDP
  - House prices and disposable income
  - Equity prices
  - Inflation and interest rates
  - Banking sector variables (leverage and market financing)
  - Trade weighted global credit and house prices