



FINANCIAL STABILITY

HENRIK BORCHGREVINK

UIO

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Disclaimer

The views are those of the author and do not necessarily reflect those of Norges Bank

Outline

- What is financial stability?
- Banks and financial stability
- Systemic risk (Financial stability risk)
- Financial stability analysis (FSR 2015)
- Financial stability and macroprudential policy

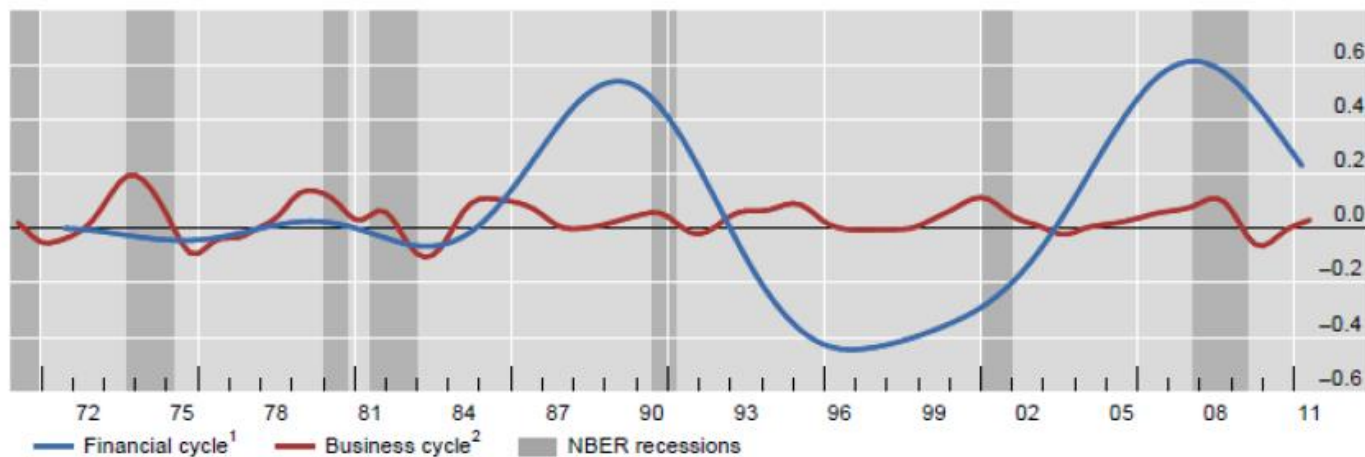
What is financial stability?

Financial stability implies a financial system that is resilient to shocks and thus capable of channelling funds, executing payments and distributing risk efficiently

Difficult to “measure” financial stability

Cyclical risks: The financial cycle (US)

The financial and business cycles in the United States

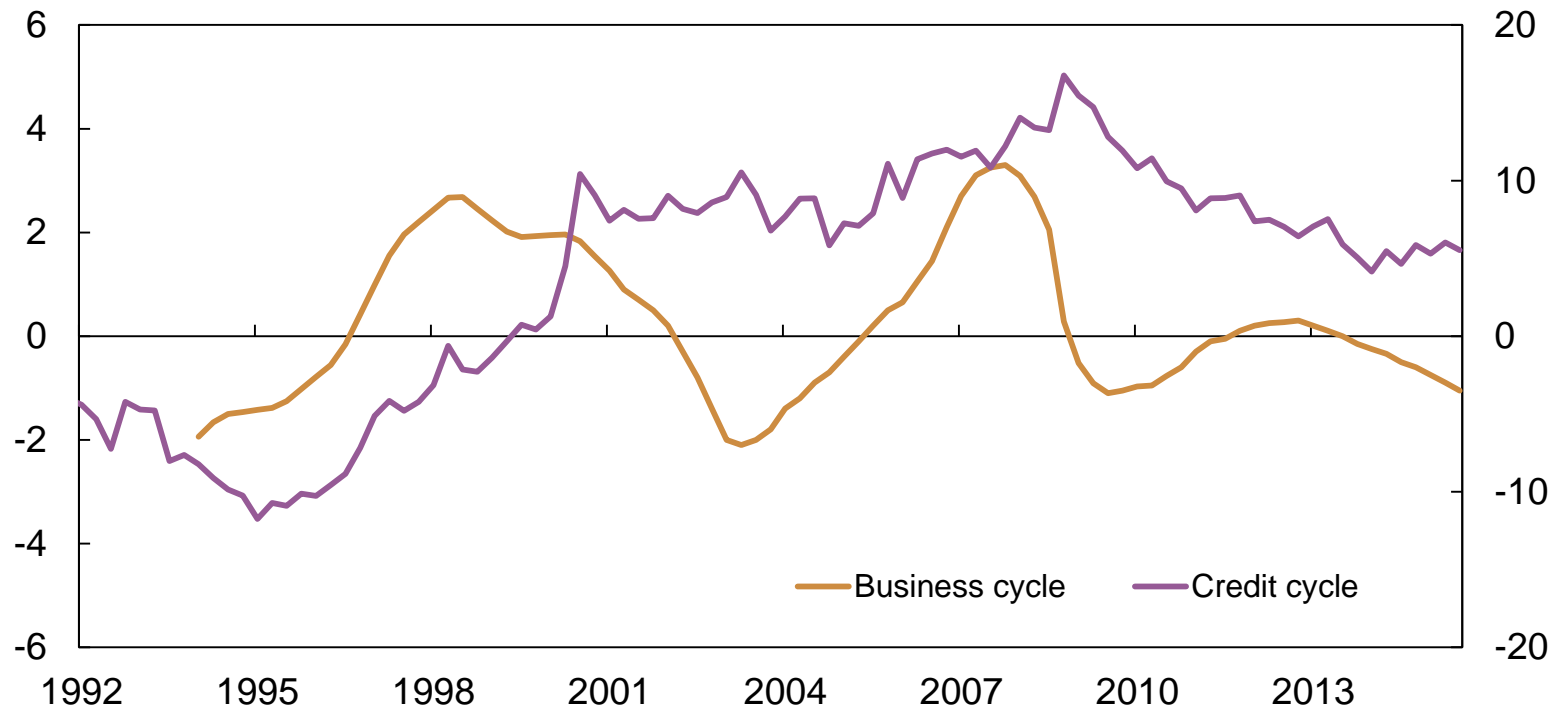


¹ The line traces the financial cycle measured as the average of the medium-term cycle in the component series using frequency-based filters. ² The line traces the GDP cycle identified by the traditional shorter-term frequency filter used to measure the business cycle.

Source: Drehmann et al (2012).



Business cycle and credit cycle in Norway



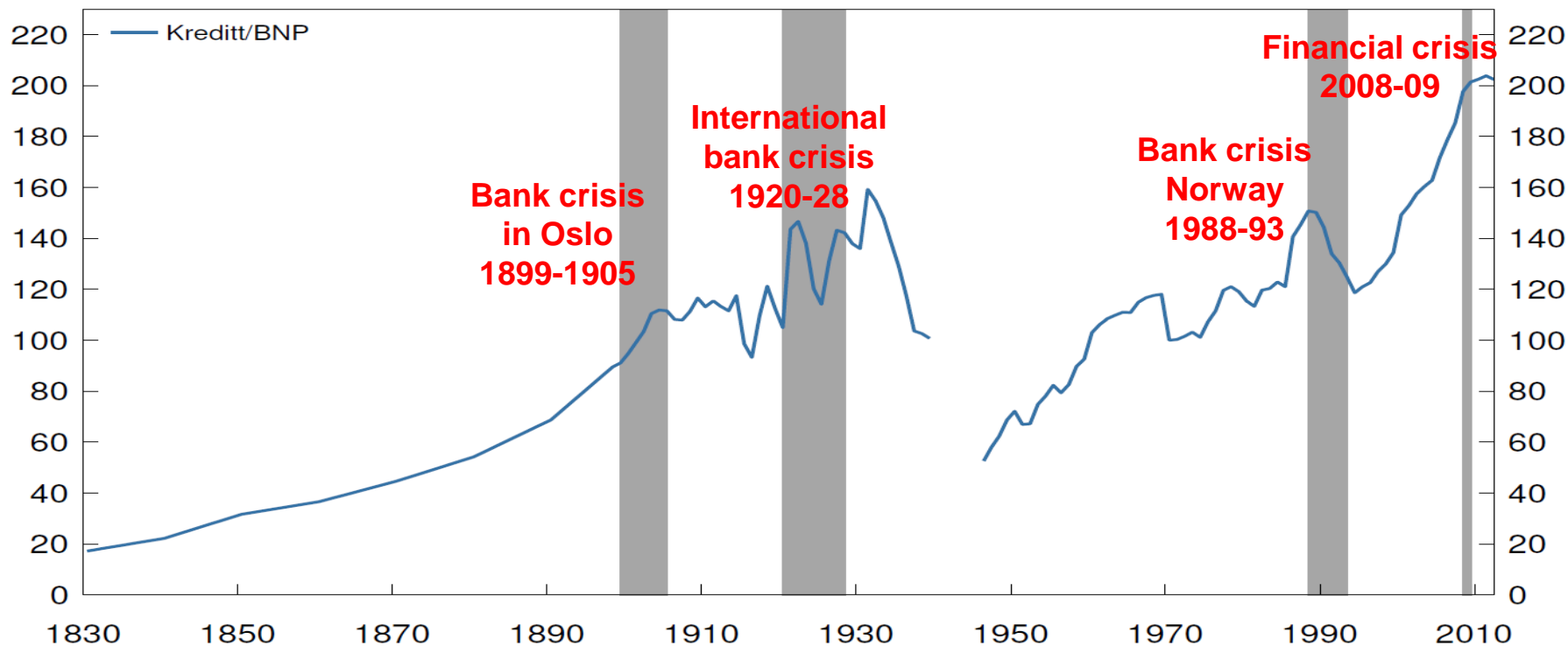
The role of debt

- Jorda, Schularick og Taylor: The more debt accumulated prior to the recession, the deeper and more prolonged is the recession
 - Study of more than 200 recessions in 14 countries (1870-2008)
 - Holds for normal recession and recessions with crisis (but strongest for the latter)

- *“Over-investment and over-speculation are often important; but they would have far less serious results were they not conducted with borrowed money”*
(Irving Fisher, «The debt-deflation theory of great depressions»,
Econometrica, 1933)



Financial crises in Norway



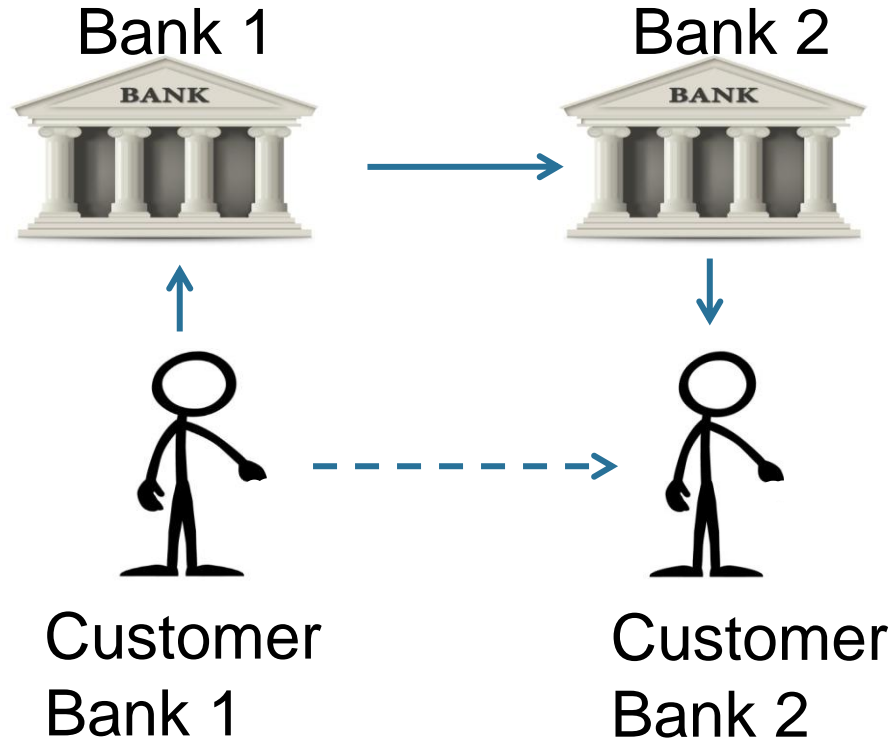
Sources: Statistics Norway and Norges Bank



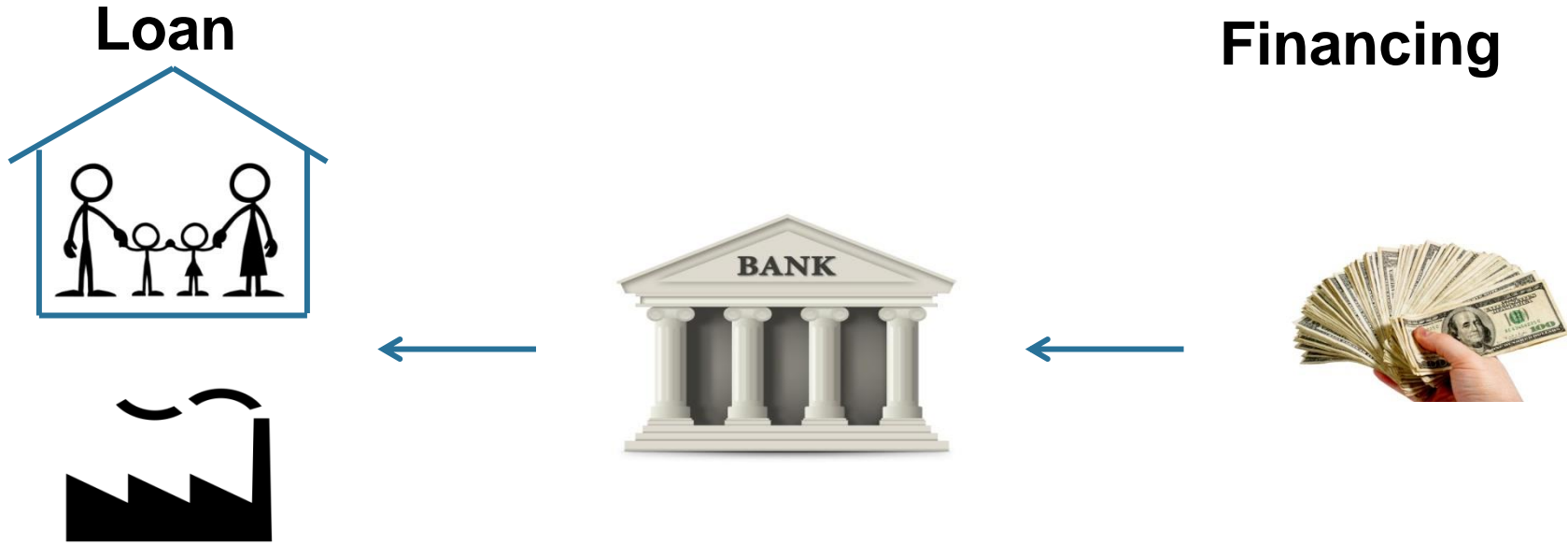
BANKS AND FINANCIAL STABILITY



Banks execute payments ...



... and act as credit intermediaries



Bank balance: Assets match financing



| | |
|-------|------------------|
| Loans | Deposits |
| | Market financing |
| | Equity |



SYSTEMIC RISK

«FINANCIAL STABILITY RISK»



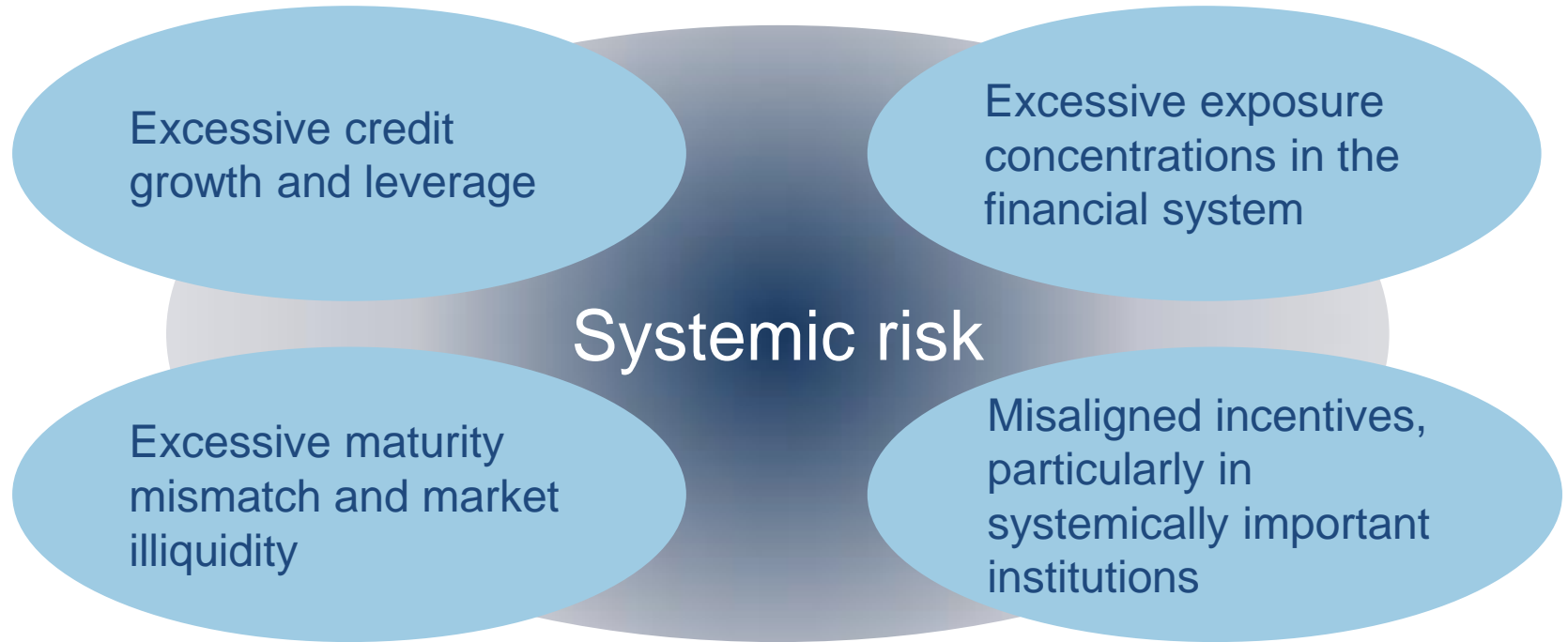
Systemic risk

Systemic risks to financial stability are risks of disruption to the financial system with the potential to have serious consequences for the real economy

(European Systemic Risk Board)



Categories of systemic risk



Two conceptual dimensions of systemic risk

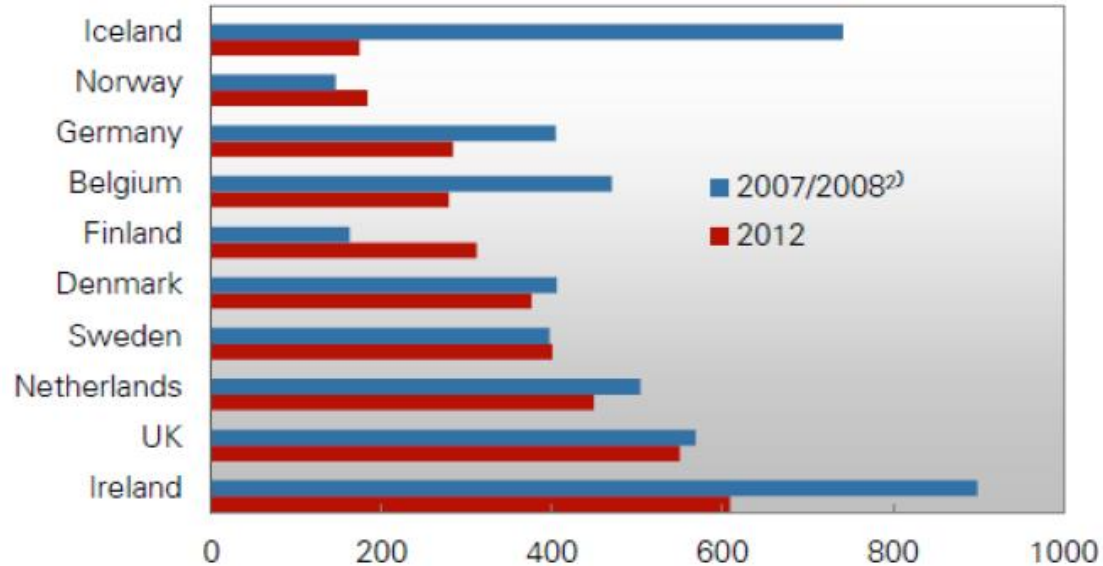
1. Cyclical systemic risk: The evolution of system-wide risk *over time* – the “time dimension”
2. Structural systemic risk: The distribution of risk in the financial system *at a given point in time* – the “cross-sectional dimension”



Cyclical dimension: Credit cycle

- (De)regulation
- Overoptimism
 - Risk being *underestimated* in upturns, and *overestimated* in downturns.
- Financial accelerator: Debt and property prices amplify each other
 - Bernanke, B. S., M. Gertler, and S. Gilchrist (1999). The financial accelerator in a quantitative business cycle framework. Handbook of Macroeconomics 1.
- Individual borrowers and banks do not fully take into account the gradual increase in the economy's vulnerability to shocks as debt rises (pecuniary externality)
 - Bianchi, J. (2011). Overborrowing and systemic externalities in the business cycle. AER 101.

Structural dimension: 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.

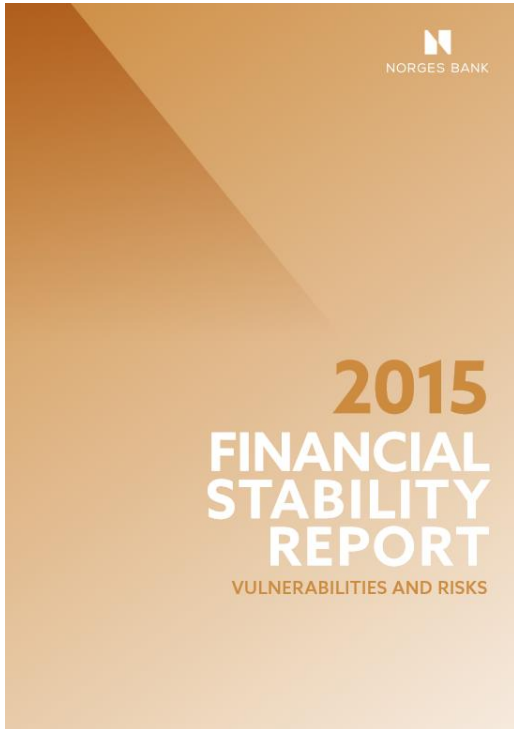
Sources: ECB, Central Bank of Iceland and Norges Bank

FINANCIAL STABILITY ANALYSES

FINANCIAL STABILITY REPORT 2015



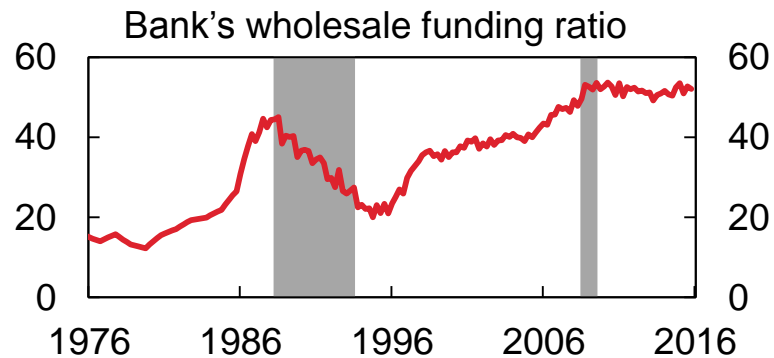
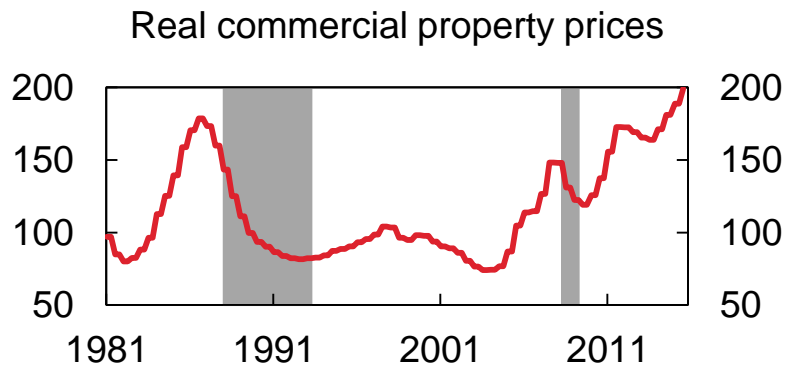
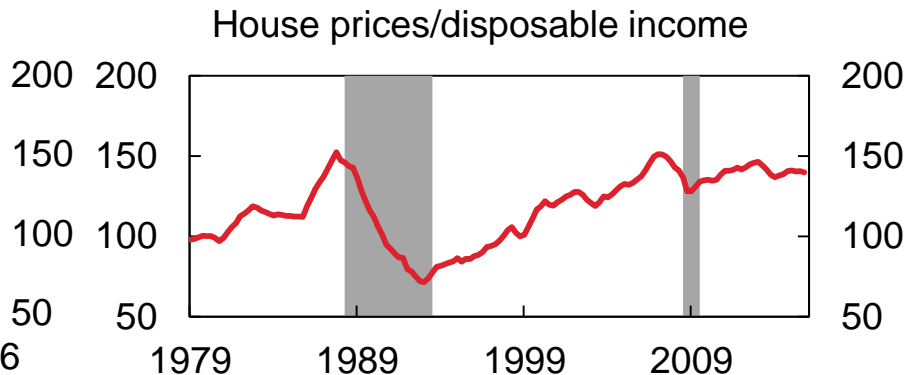
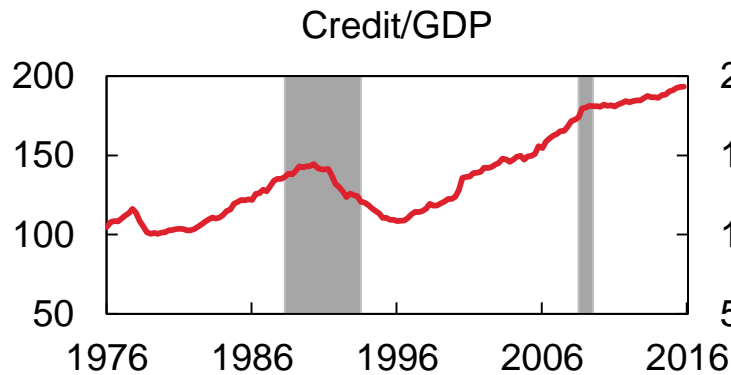
Financial stability reports



Financial stability reports

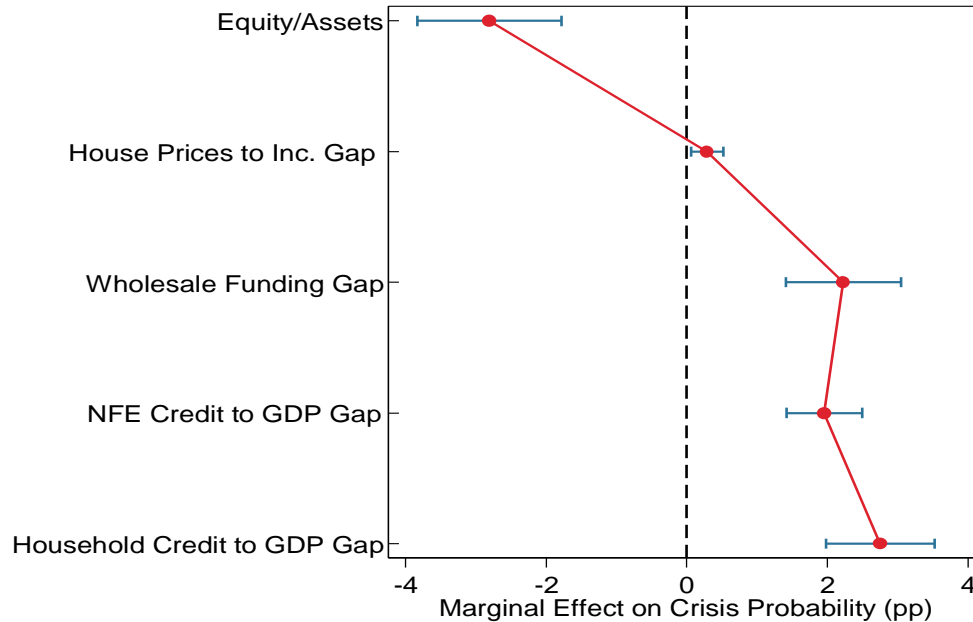


MPR 1/16 Indicators of financial imbalances



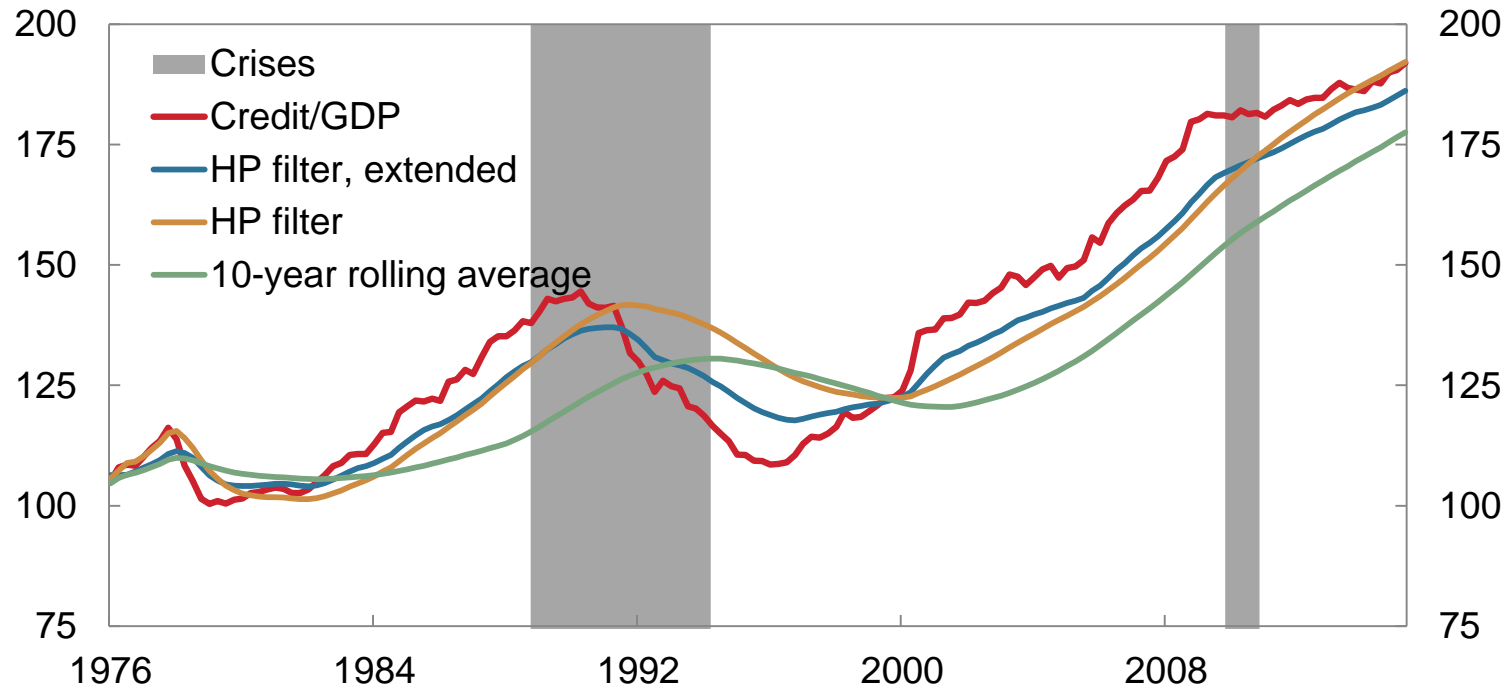
Marginal effects on crisis probability

Anundsen et al. (2014) : Bubbles and crises: « The role of house prices and credit” http://static.norges-bank.no/pages/101680/Working_Paper_14_2014.pdf?v=12/10/201593321AM&ft=.pdf

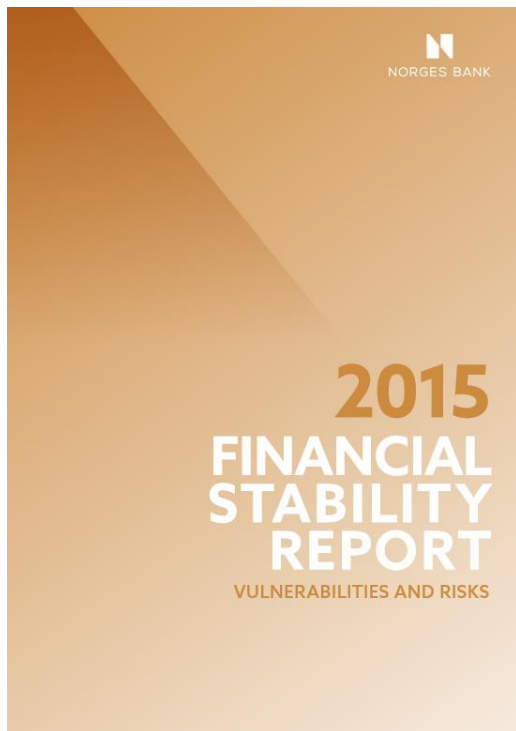


Credit as a share of GDP with three different trend calculations

Percent



Financial stability reports



Financial stability report 2015

Key vulnerabilities in the Norwegian financial system

Change since
FSR 2014

High household debt



Persistently strong rise in real estate prices



Banks' short-term foreign currency funding



Household vulnerability

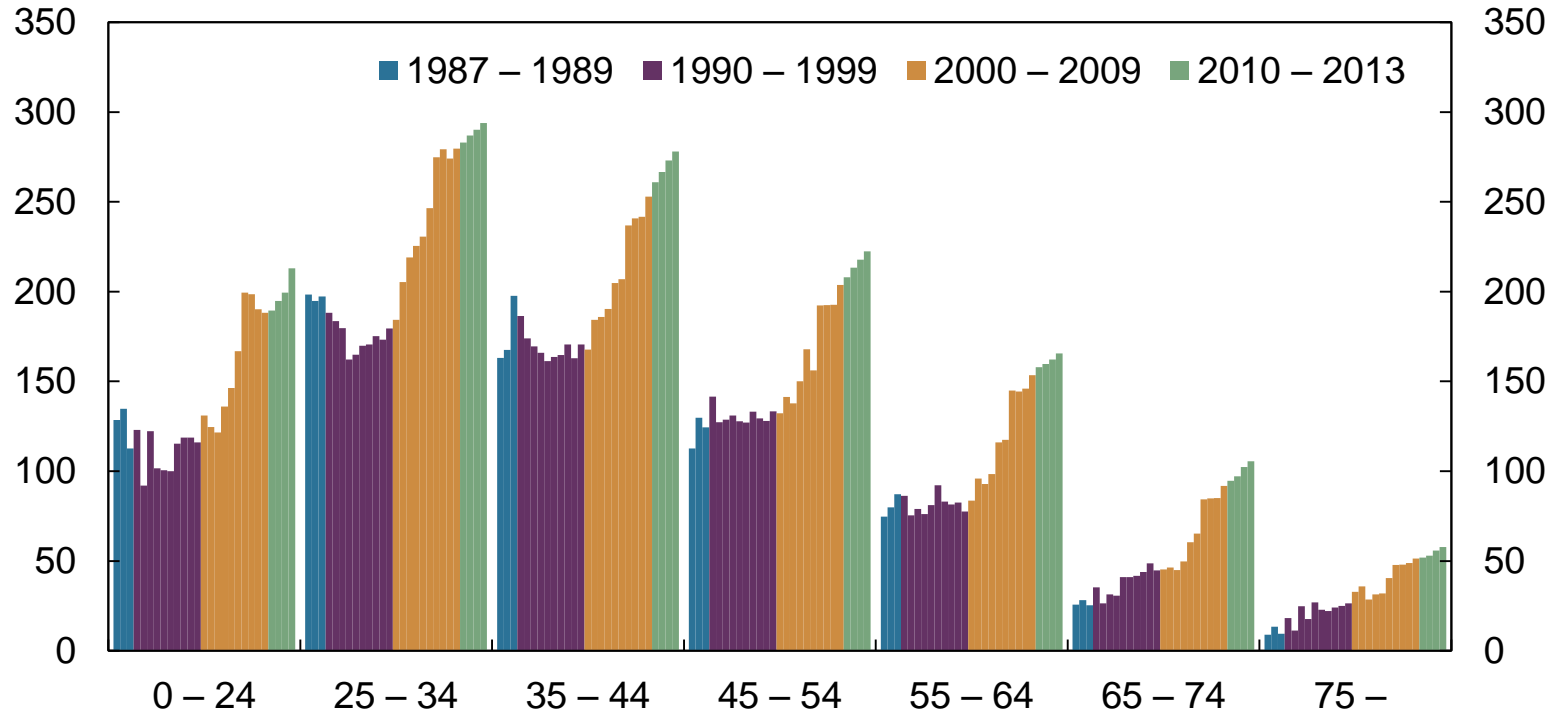
From the executive board's assessment FS 2015

- *Household debt burdens are high. Debt growth is lower than in the years preceding the financial crisis, but household debt is still growing more rapidly than household income*
- *Younger households in particular are vulnerable because of high debt, a high interest burden and limited assets other than housing wealth*
- *With high levels of debt, households faced with a drop in income, an increase in interest rates or a fall in house prices may tighten consumption considerably. This could amplify a downturn and lead to higher bank losses*



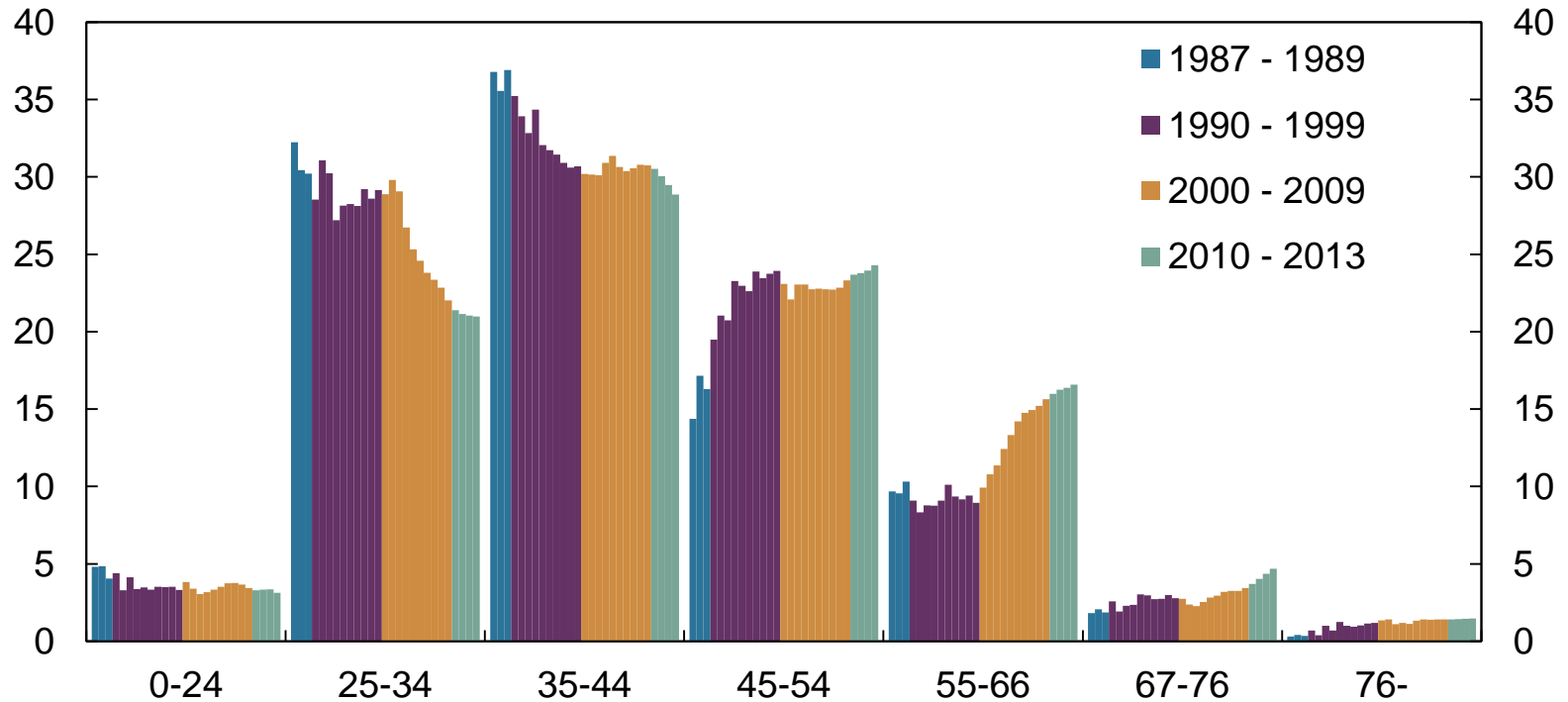
Household debt

Debt to after-tax income ratio by age. Percent



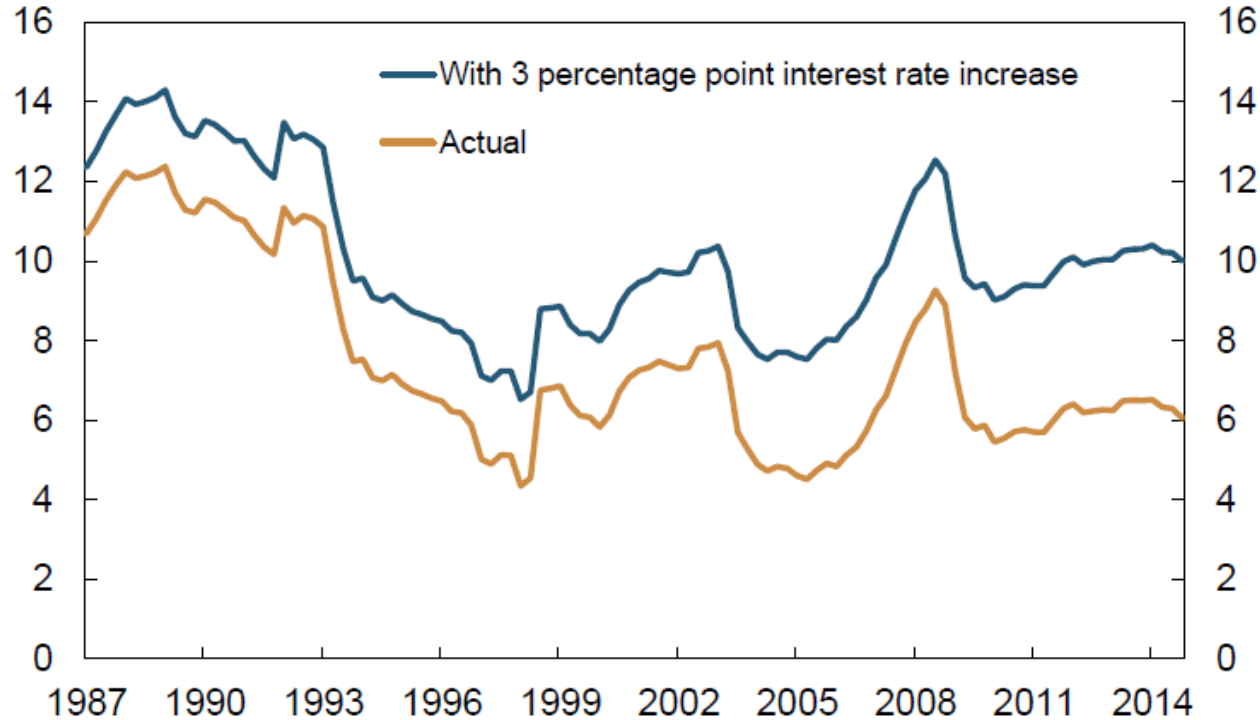
The distribution of debt has changed

Distribution of debt by age. Percent of total debt.



Households vulnerable to interest rate increases

Households' interest burden. Percent



Sources: Statistics Norway and Norges Bank



Financial stability report 2015

Key vulnerabilities in the Norwegian financial system

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Persistently strong rise in real estate prices

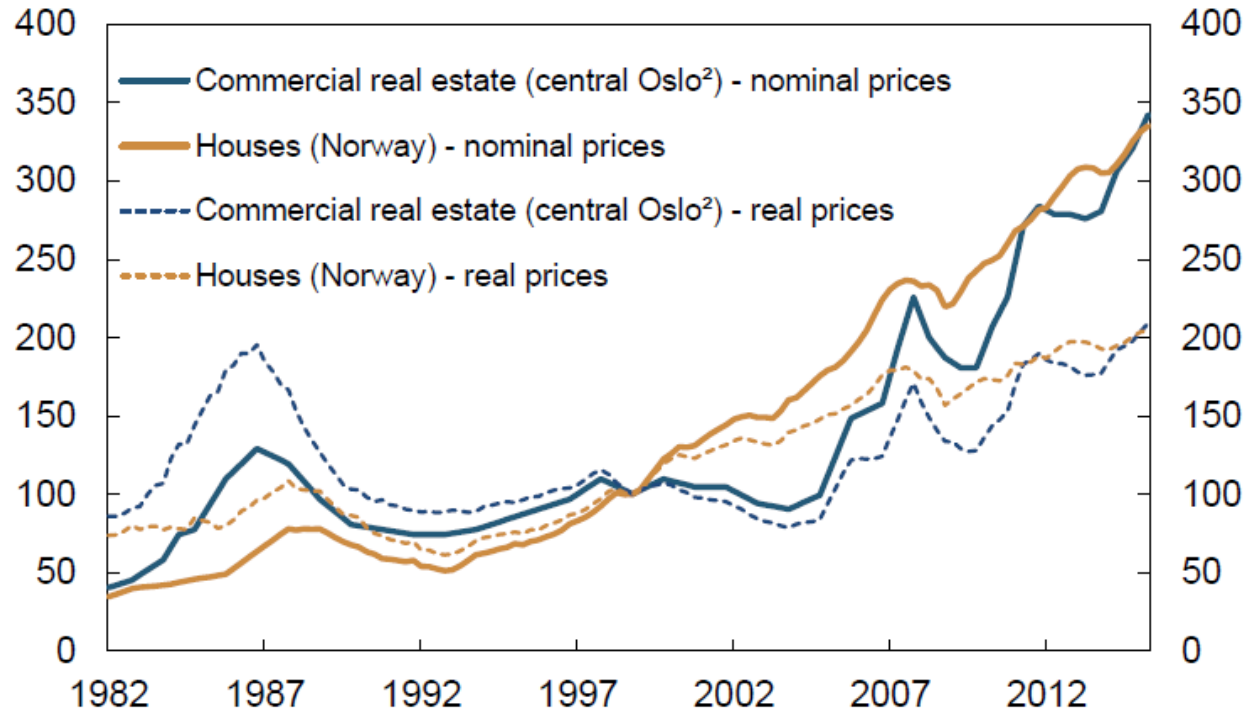


Banks' short-term foreign currency funding



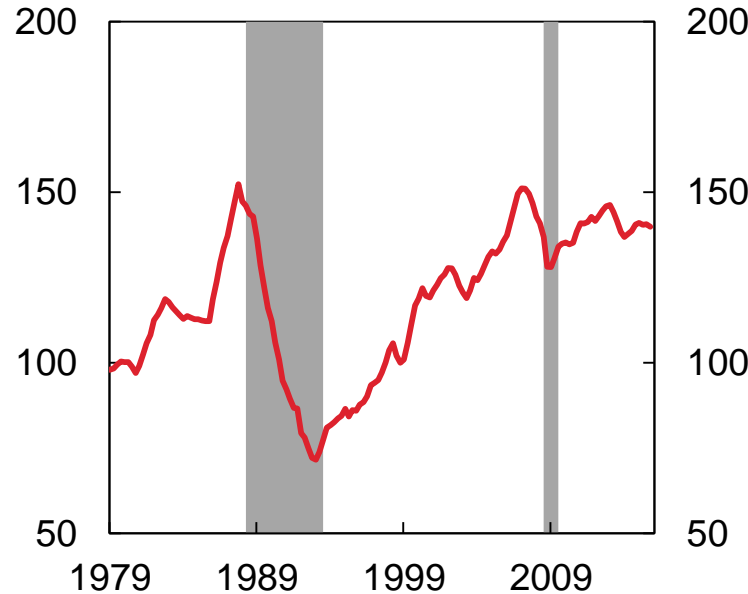
Persistent rise in real estate prices

Index. 1998 Q4 = 100

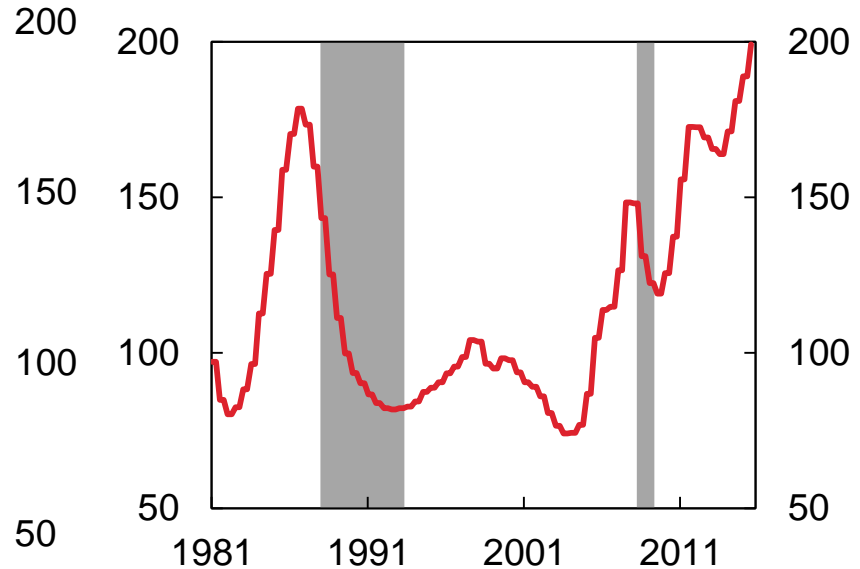


Persistent rise in real estate prices

House prices/disposable income



Real commercial property prices



Financial stability report 2015

Key vulnerabilities in the Norwegian financial system

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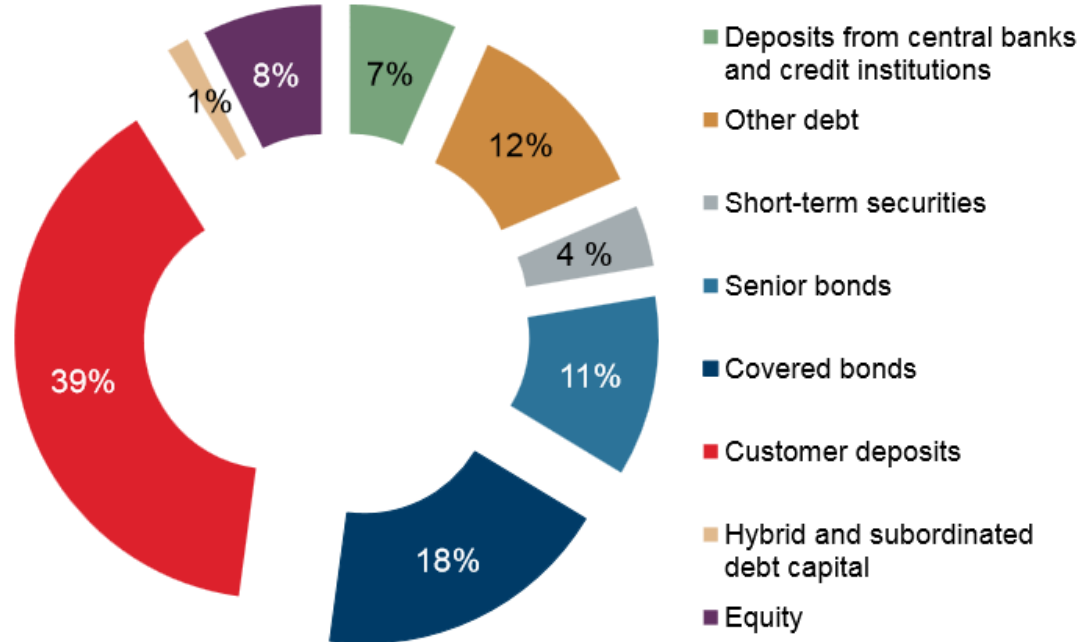
Persistently strong rise in real estate prices



Banks' short-term foreign currency funding



Funding of Norwegian banks



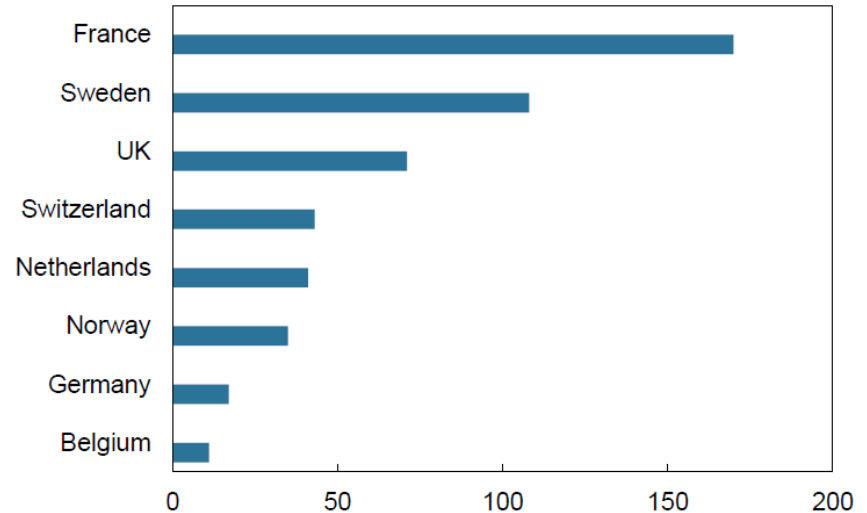
1) Sum of all banks and covered bond mortgage companies excluding branches and subsidiaries of foreign banks in Norway.
Source: Norges Bank



Banks' short-term foreign currency funding

- 14 %of banks' wholesale funding is short-term FX, primarily USD
- The percentage share varies considerably over time
- Experience shows that short-term funding can dry up abruptly and prove difficult to replace
- Reacts to news about Norwegian economy

Chart 1.5 US prime money market funds' total bank exposures¹ in Europe. In billions of USD. As at 31 August 2015

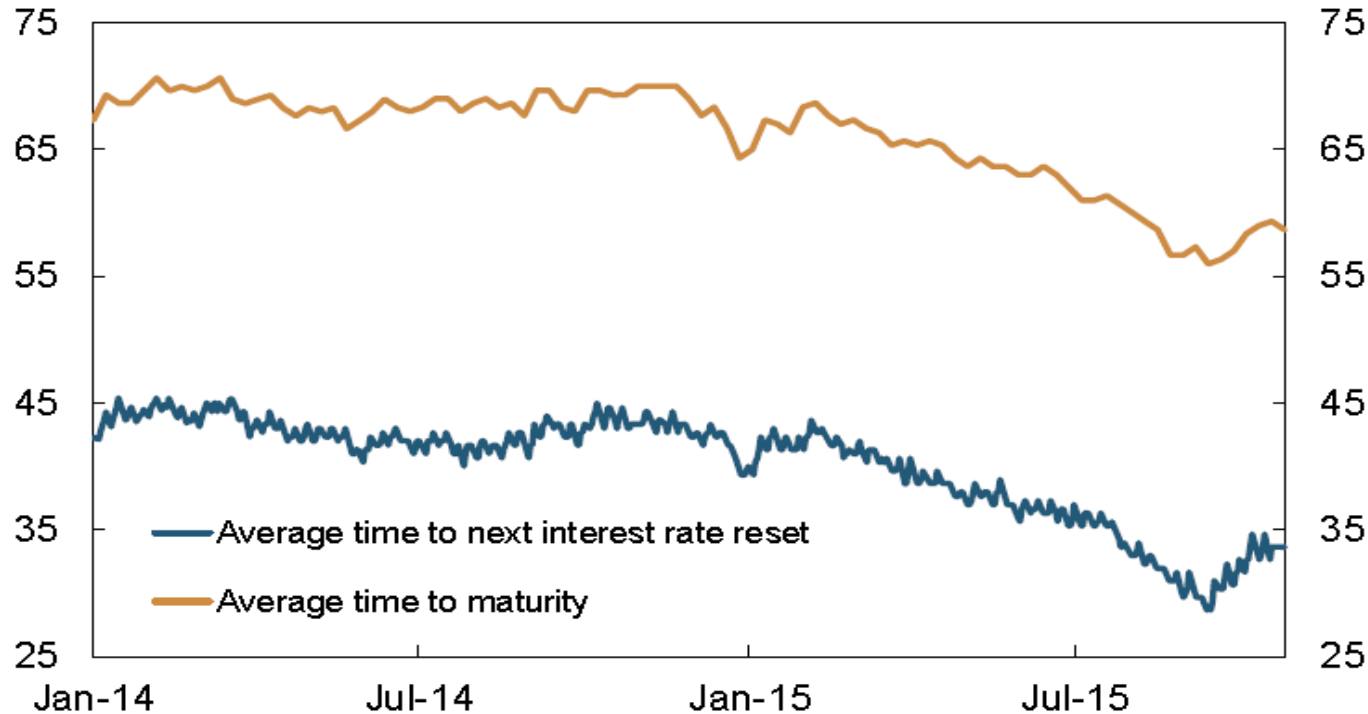


1) J.P. Morgan estimate.
Source: J.P. Morgan



Declining maturity

Average maturity of US MMFs' assets. Days. 3 Jan 2014 – 27 Oct 2015



STRESS TEST



Stress test of the Norwegian «macro bank»

Top-down stress test 7 largest Norwegian banks

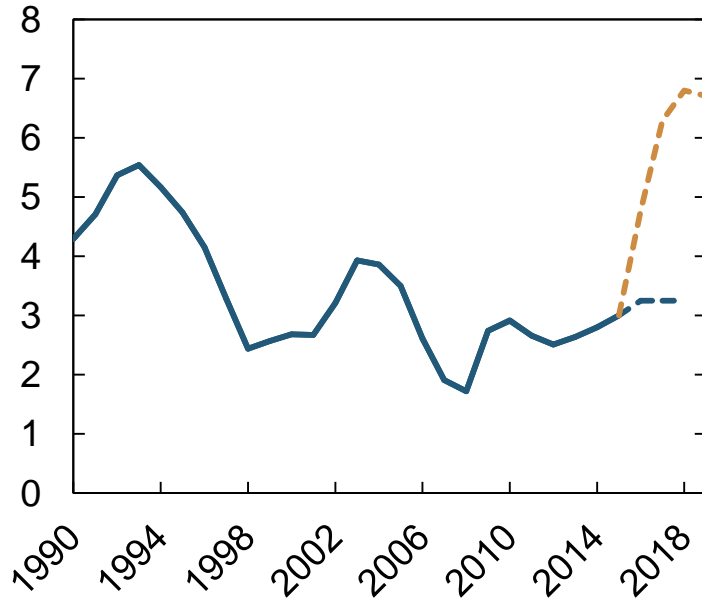
Stress scenario 2016-2019:

- Growth among trading partners fall markedly
- Oil price at 30 dollars, rising towards 50 in 2019
- Substantial repricing of all risk premiums
- (Key policy rate at ZLB; CCB set to zero)

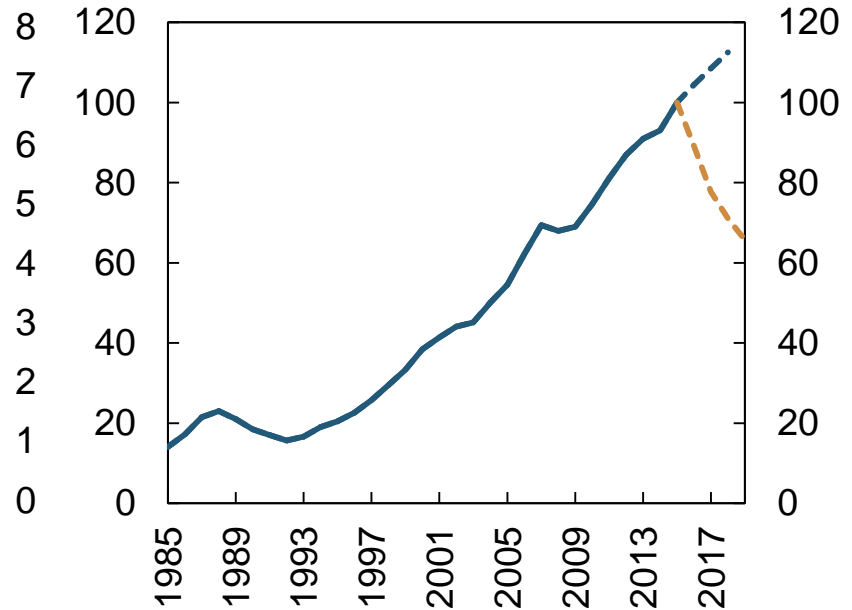


Pronounced downturn in Norway

Unemployment. Percent

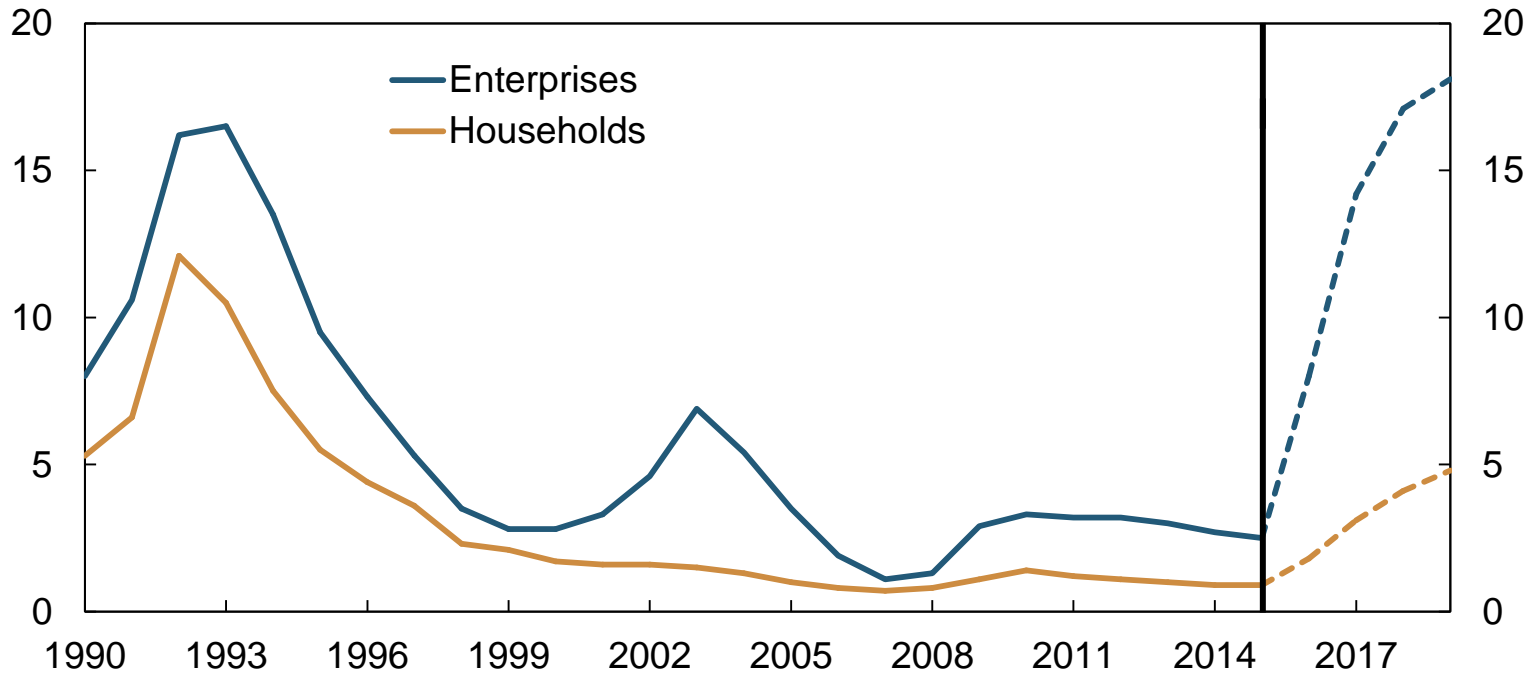


House prices. 2015=100



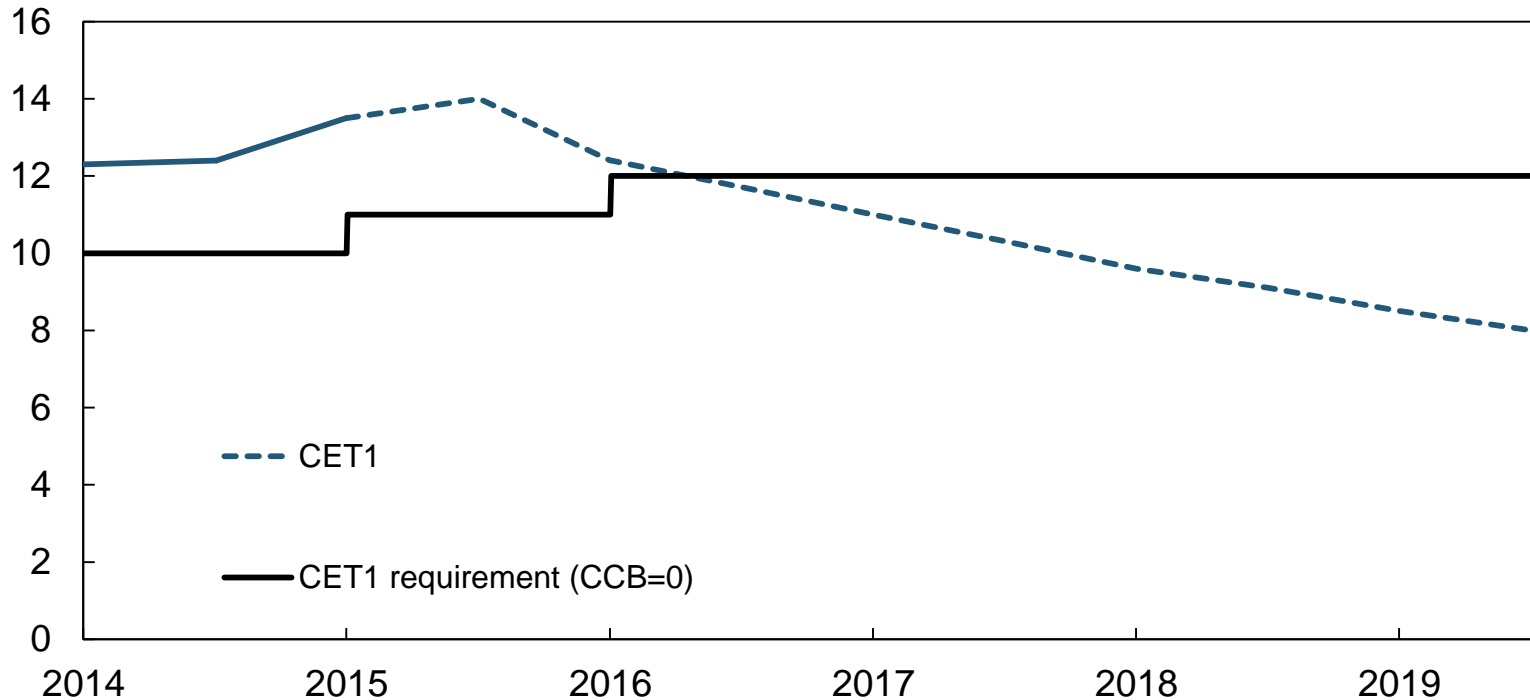
Macro bank's problem loans

Percent of lending to sector.



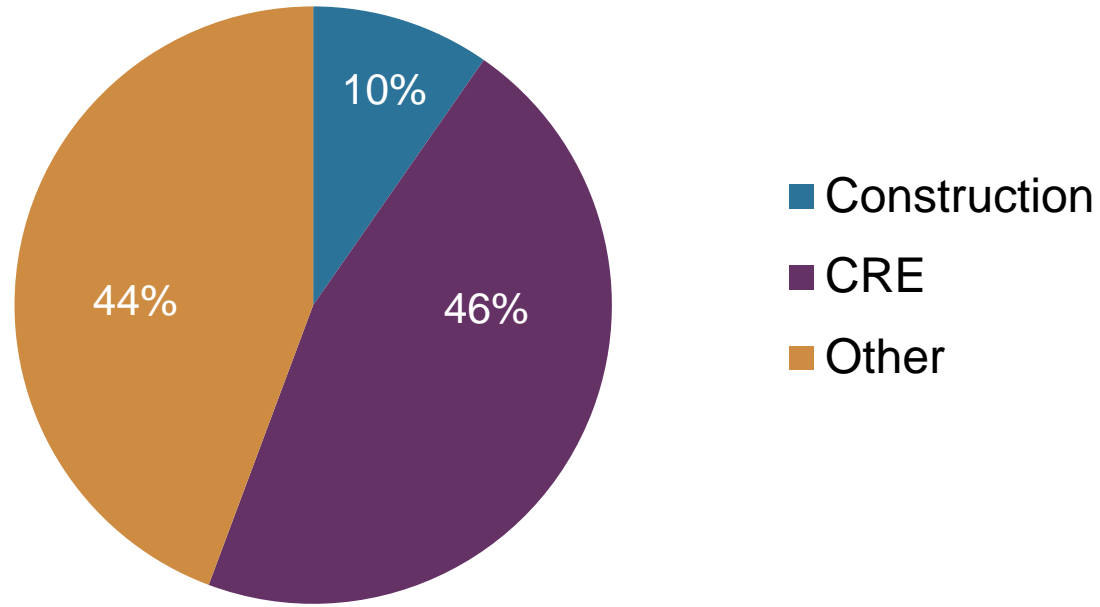
Equity ratio (CET1) in the adverse scenario

Percent Q2 2014 – Q4 2019



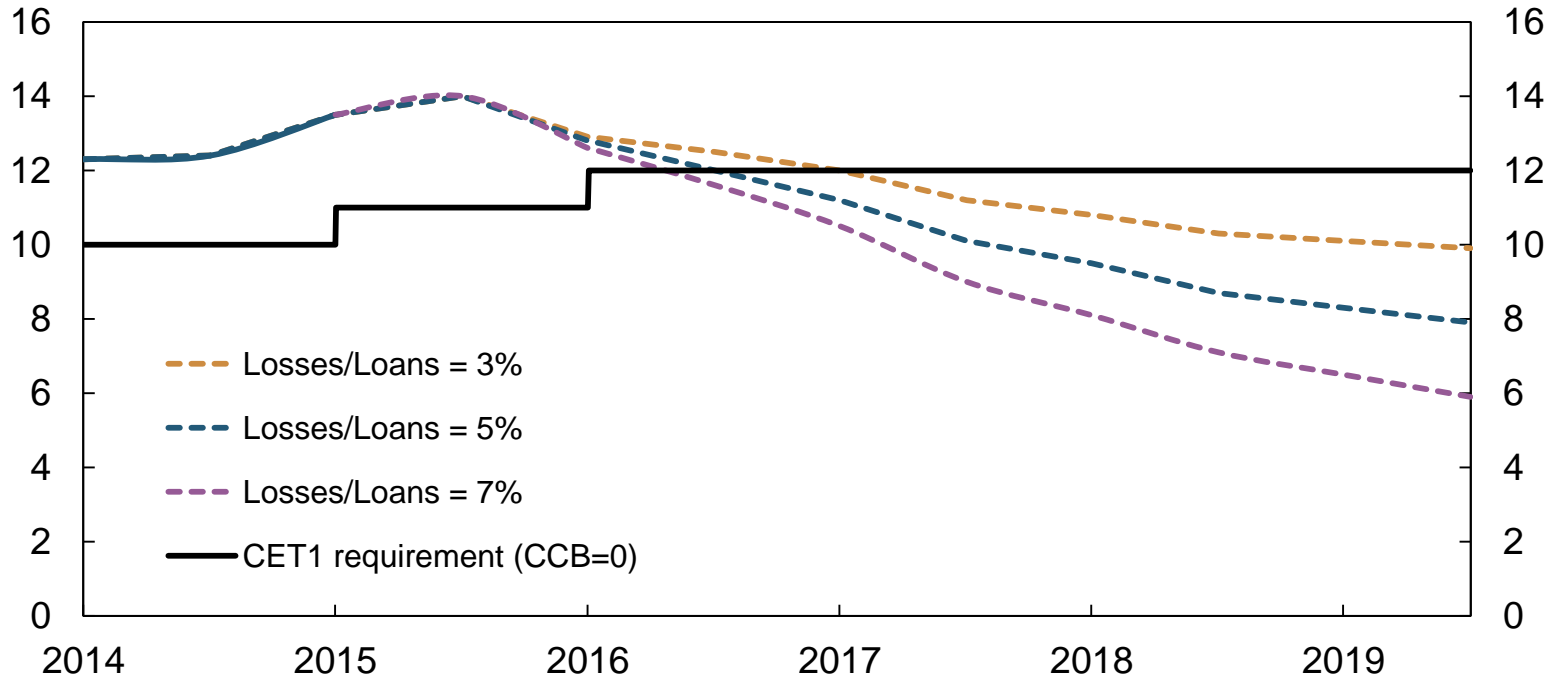
Banks are exposed to CRE and construction

Percent of banks' loans to corporates



Stress test with different CRE&Construction losses

Percent



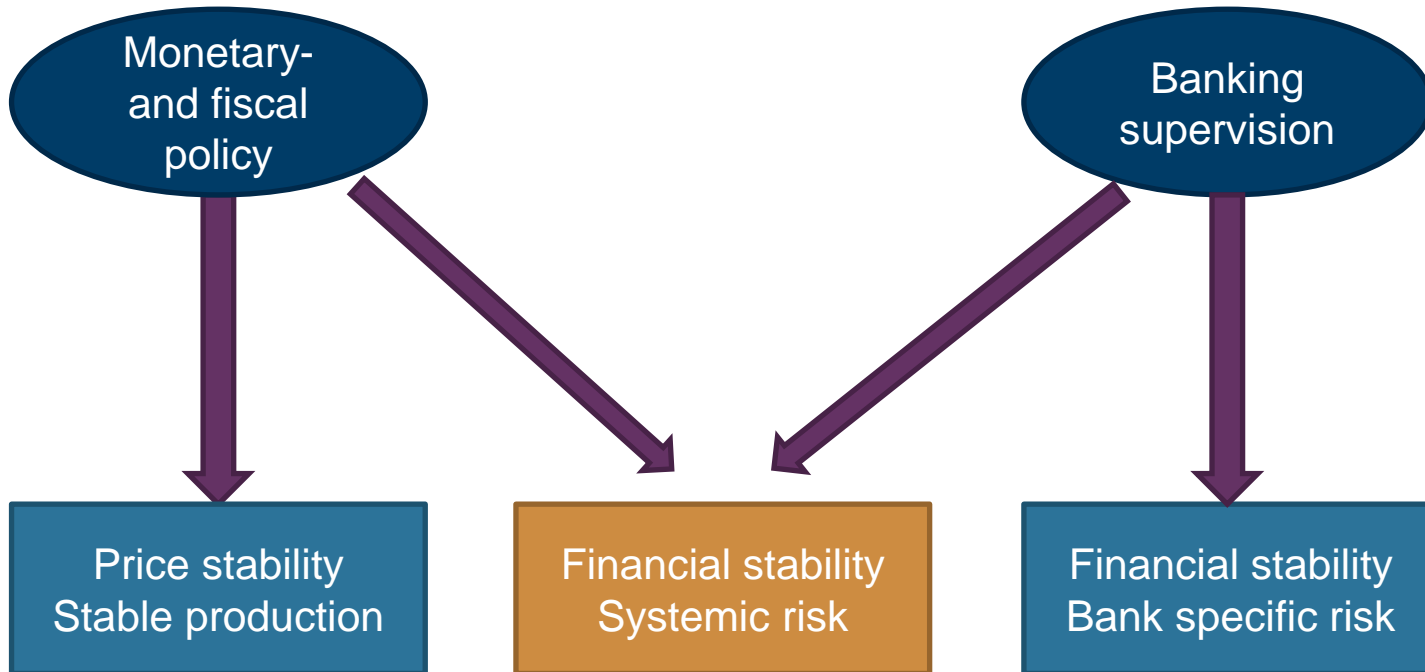
Summary

- Strong growth in debt and property prices is a sign that financial imbalances has been build up. Recent developments suggest that the imbalances have not built up further (MPR 1/16)
- Key vulnerabilities for financial stability (FSR 2015)
 - High level of household debt
 - Persistently strong rise in real estate prices
 - Bank's short-term foreign currency funding
- The stress test of the Norwegian banking sector shows that the banks could experience high loan losses in the event of a pronounced downturn in the Norwegian economy without breaching the minimum capital adequacy requirement

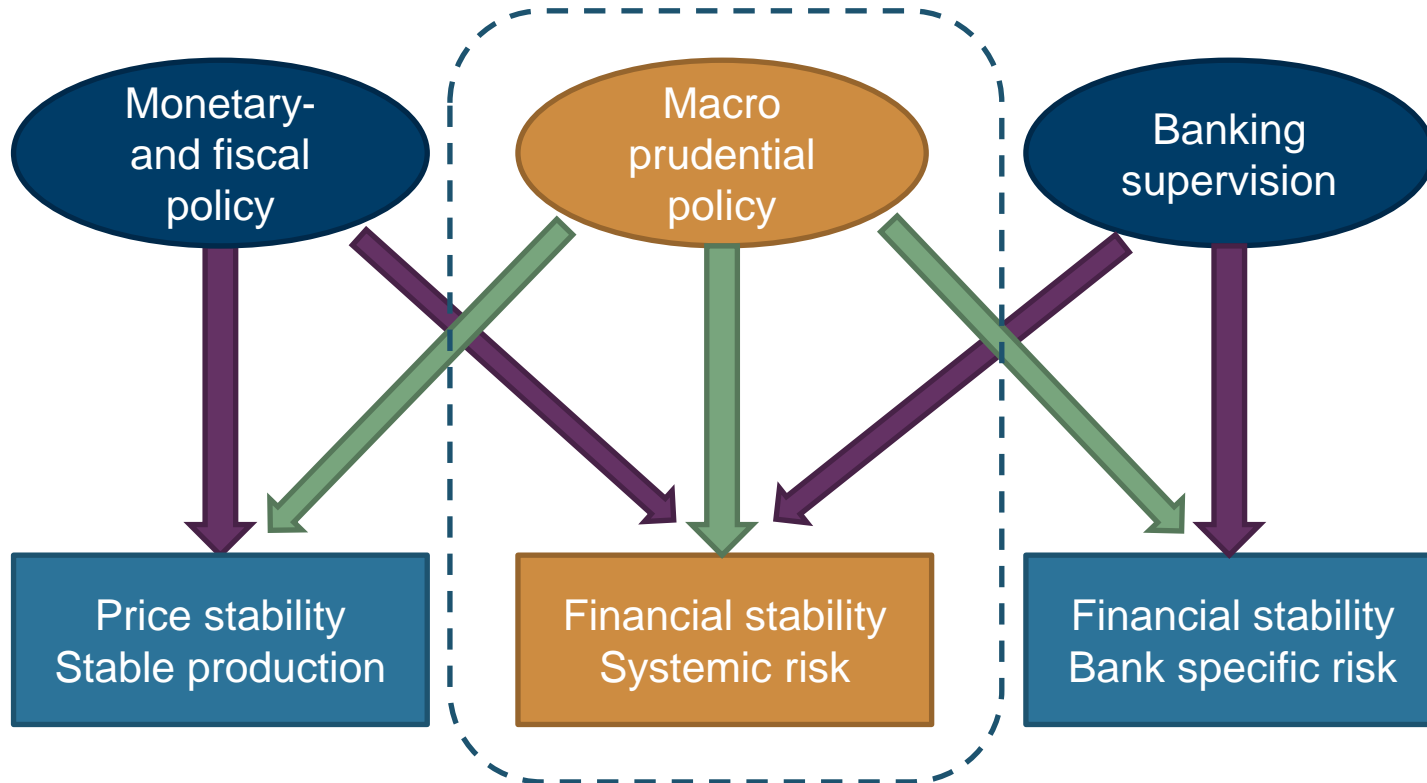


FINANCIAL STABILITY AND MACROPRUDENTIAL POLICY





New instruments



Micro- and macroprudential

- Both focus on financial institutions, similar tools, but different objectives:
- Microprudential:
 - Objective: *to mitigate bank specific risk*
 - Is each individual bank prudent with sufficient capital according to regulation?
- Macroprudential:
 - Objective: *to mitigate systemic risk*
 - Does the banking system have sufficient buffers to meet huge losses, so that they are still able to provide credit to households and firms in a downturn?



Policy trade-offs: macroprudential policy versus microprudential policy

1. When systemic risk is high/increasing
 - A macroprudential regulator would typically want higher capital ratios
 - Not necessary in conflict with microregulator
2. In a crisis situation a tradeoff occurs:
 - A macroprudential regulator would typically allow capital levels in banks to be reduced so as to sustain the flow of credit to the real economy
 - A microprudential regulator would typically want to maintain capital ratios to ensure the soundness of individual banks

“the macroprudential approach to financial regulation as an effort to control the social costs associated with excessive balance-sheet shrinkage on the part of multiple financial institutions hit with a common shock”

Hanson, S. G., A. K. Kashyap, and J. C. Stein (2011). A macroprudential approach to financial regulation. Journal of Economic Perspectives 25 (1), 3-28



Policy trade-offs: monetary policy and macro-prudential policy

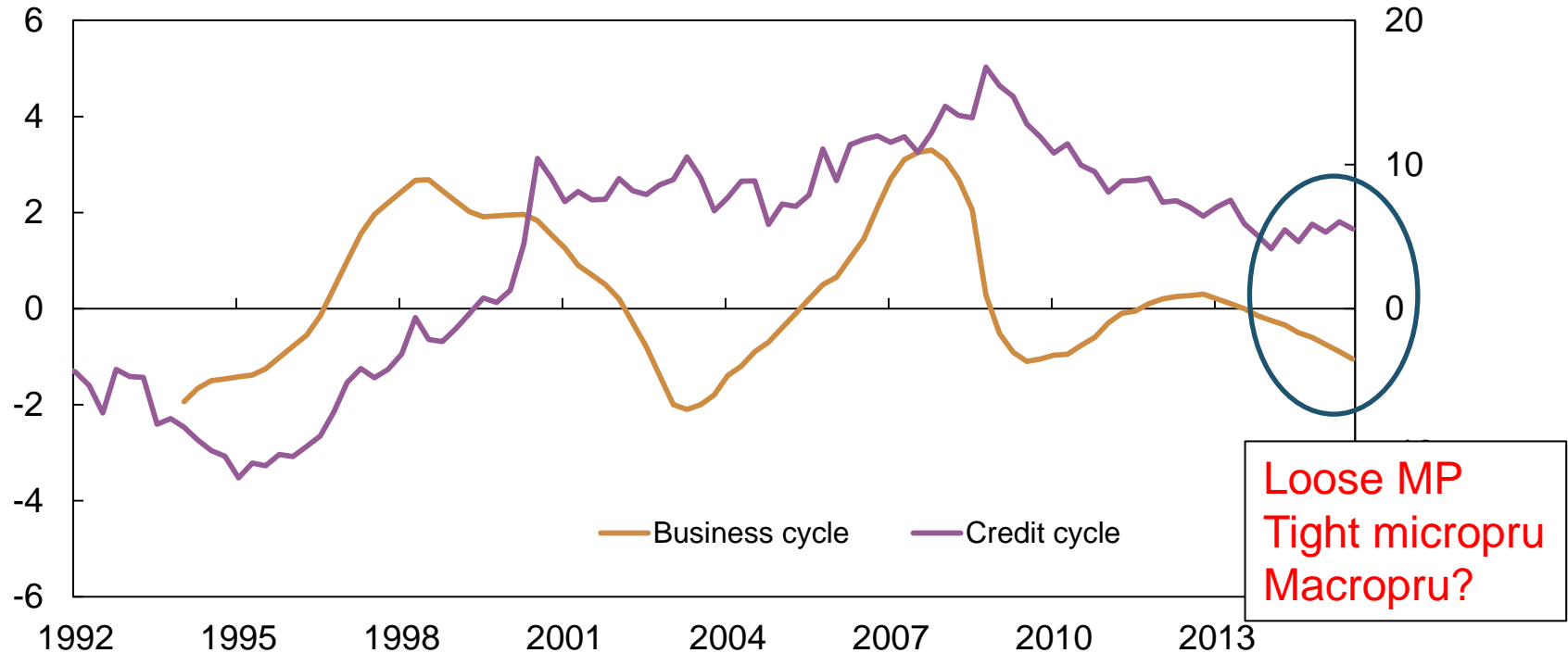
Interactions between macro-prudential and monetary policy actions depending on outlook for price and financial stability

| Outlook for inflationary pressure | | | | |
|-----------------------------------|-------------|---------------|------------------------------------|---------------|
| | | Weakening | Stable | Strengthening |
| Asset and credit price cycle | Exuberance | Conflicting | Primary objectives are independent | Complementary |
| | Stable | Independent | Independent | Independent |
| | Contraction | Complementary | Primary objectives are independent | Conflicting |

Source: Dunstan (2014)



Potential conflict when the business and credit cycle diverge..



Financial stability in Norway- division of responsibilities

- **The Ministry of Finance** has overriding responsibility for ensuring that Norway has a well functioning financial industry.
 - Regulations (system and capital levels)
 - Crisis resolution
- **Financial Supervisory Authority of Norway** has a particular responsibility for solvency, management and control in financial institutions.
 - direct supervisory authority over financial sector participants
- **Norges Bank** is responsible for promoting a robust and efficient financial system
 - Monitor the financial system, institutions, securities market and payment system to identify trends that may weaken the stability of the financial system
 - Give advice on counter cyclical buffer and other measures the bank finds necessary
 - Lender of last resort



Implementation of macroprudential policy in Norway

- **Regulation on requirements for residential mortgage loans (2015)**
 - Maximum loan-to-value of 85 percent
 - Debt-servicing capacity requirement
 - Amortization requirement

- **Higher capital requirements (2013-2016)**
 - Systemic risk buffer
 - Buffer for systemically important banks
 - Countercyclical capital buffer



Relevant literature

- Anundsen et al (2014) :Bubbles and crises: « The role of house prices and credit” http://static.norges-bank.no/pages/101680/Working_Paper_14_2014.pdf?v=12/10/201593321AM&ft=.pdf
- Bernanke, B. S., M. Gertler, and S. Gilchrist (1999). The financial accelerator in a quantitative business cycle framework. Handbook of Macroeconomics 1. <http://www.econ.nyu.edu/user/gertlerm/BGGHandbook.pdf>
- Bianchi, J. (2011). Overborrowing and systemic externalities in the business cycle. AER 101. <https://www.aeaweb.org/articles?id=10.1257/aer.101.7.3400>
- Borchgrevink et al (2014): «Macroprudential regulation - what, why and how?” http://static.norges-bank.no/pages/101524/Staff_Memo_13_2014_eng.pdf?v=10/20/201435914PM&ft=.pdf
- Dunstan, A. (2014): «The interaction between monetary and macro-prudential policy» <http://www.rbnz.govt.nz/-/media/ReserveBank/Files/Publications/Bulletins/2014/2014jun77-2dunstan.pdf>
- ESRB: Flagship report on Macroprudential policy in the Banking sector: https://www.esrb.europa.eu/pub/pdf/other/140303_flagship_report.pdf
- Norges Bank:
 - Financial Stability 2015 (chapter 1 – 2): http://static.norges-bank.no/pages/104006/FinancialStability_2015.pdf?v=11/12/201512811PM&ft=.pdf
 - Monetary Report 1/16 (chapter 3): http://static.norges-bank.no/pages/104770/MPR_1_16.pdf?v=3/17/201620125PM&ft=.pdf





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HENRIK BORCHGREVINK

UIO

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