

## Discussion on Session 6: “LEVERAGE CYCLES AND MACRO- FINANCIAL LINKAGES”

by Kim Abildgren



## General assessment and outline of discussion

- ◆ Impressive and painstaking work! - Two very interesting papers of high relevance in relation to macroprudential analysis and policy implementation.
- ◆ Both papers offer novel theoretical or empirical approaches to analyse the link between financial stability and the performance of the economy.
- ◆ Outline of the discussion:
  - ◆ What are the key messages from the papers in relation to some of the key MaRs Research Question?
  - ◆ The papers focuses on the US - I have included a few pictures from MaRs Research on Denmark to illustrate the issues.
  - ◆ A few suggestions for further research.

# **Gelain, Lansing and Mendicino: House Prices, Credit Growth, and Excess Volatility: Implications for Monetary and Macroprudential Policy - 1**

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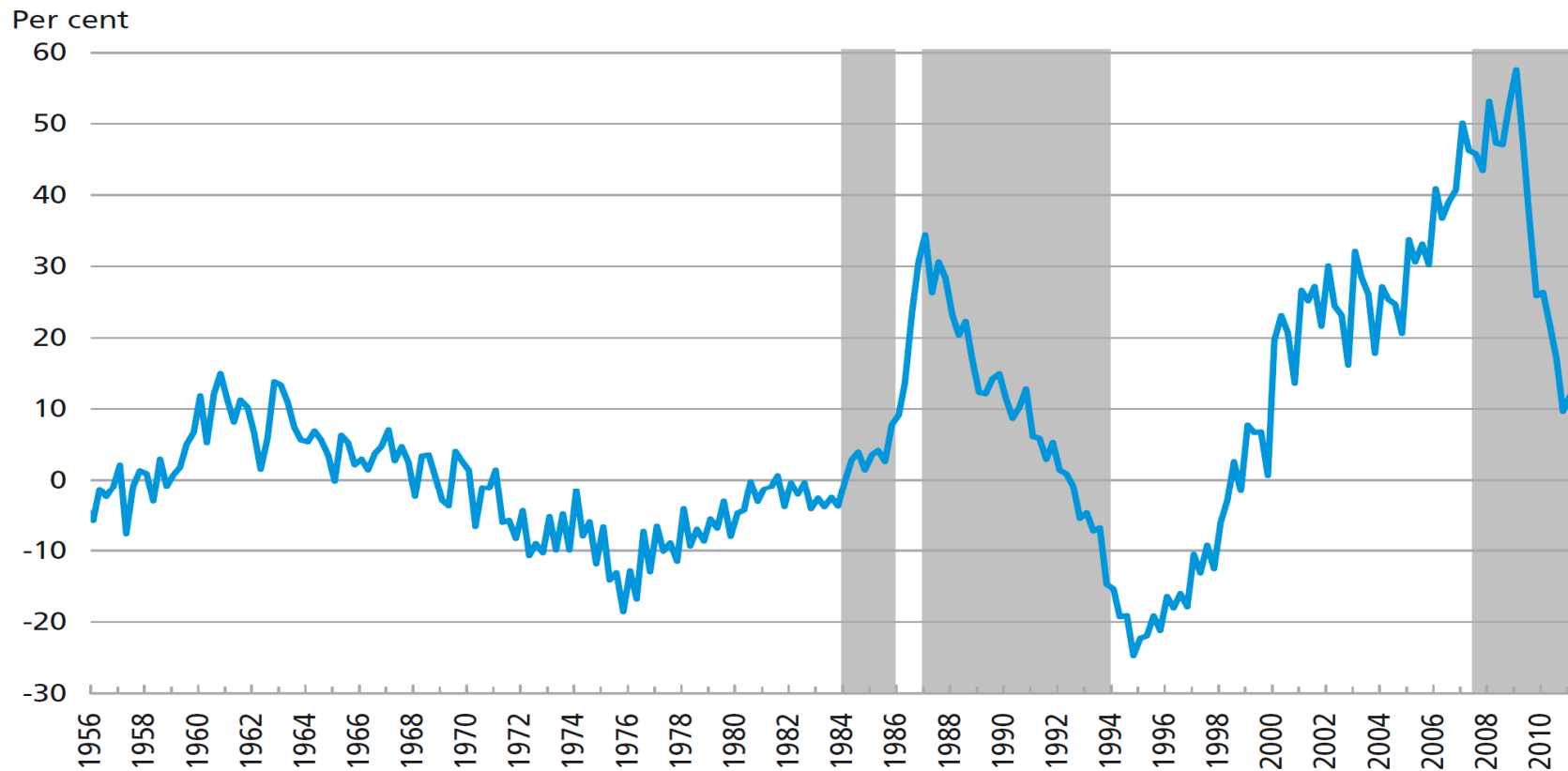
## **MaRs Research Question: How can the leverage cycle be described theoretically and empirically? - 1**

- ◆ Literature review and empirical observations in the paper:
  - ◆ Influx of new homebuyers with access to easy mortgage credit can lead to an excessive run-up in house prices unrelated to economic fundamentals and an excessive expansion of the residential construction sector.
  - ◆ After the turn in real house prices the unwinding of excess household leverage leads to a period with higher saving and increased defaults, which lead to instability in the financial sector and a long-lasting negative impact on real GDP.

# A few pictures - 1

LENDING BY BANKS AS A RATIO OF GDP 1956-2011, DEVIATION FROM TREND

Chart 4.1



Note: The grey markings indicate periods of banking crises, Lending concerns the banks' domestic loans to non-MFIs. Lending and GDP are in current prices. The trend is calculated as a 32-quarter moving average.

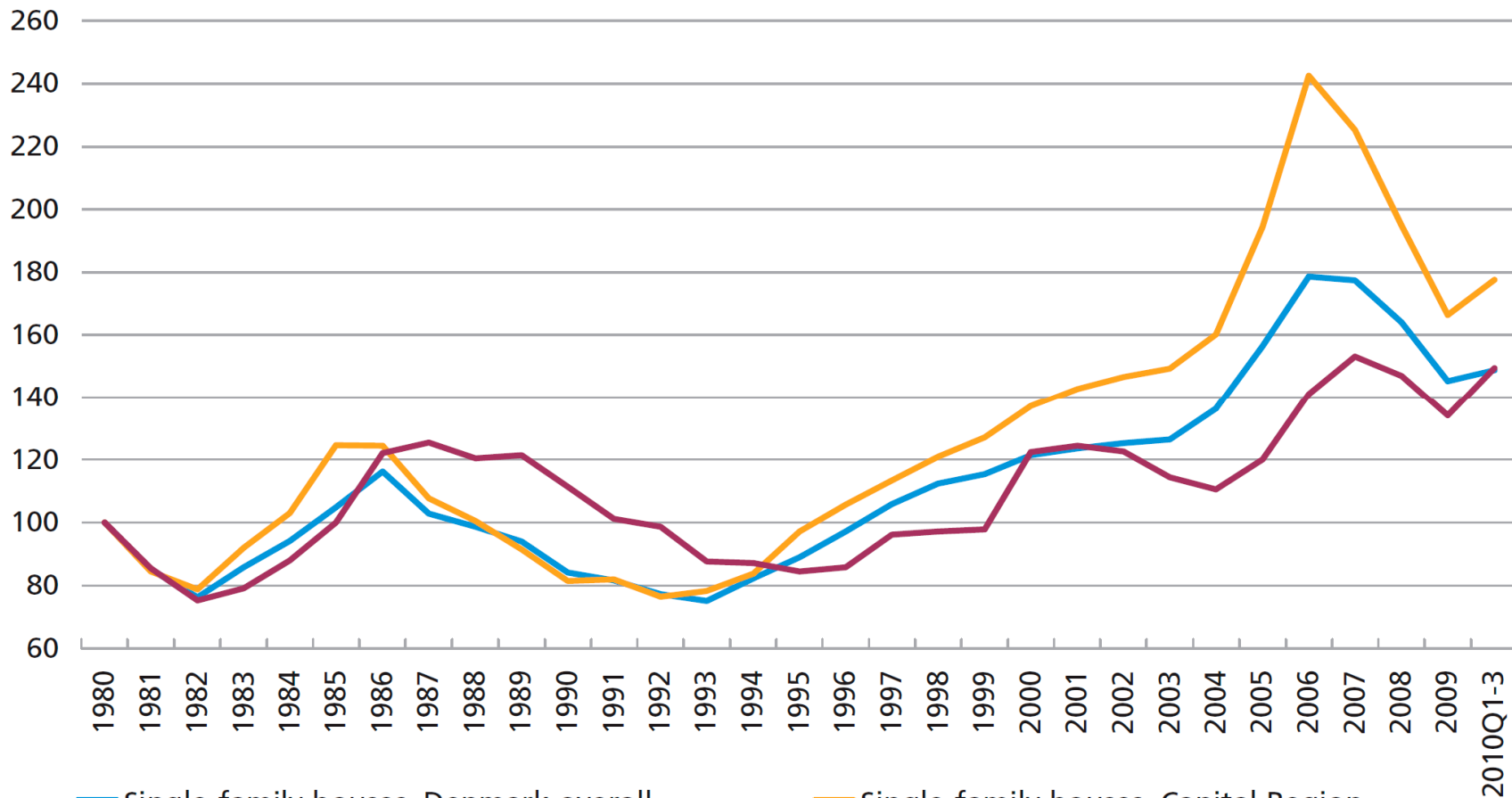
Source: Abildgren *et al.* (2011);

## A few pictures - 2

INDEX OF PROPERTY PRICES IN RELATION TO CONSTRUCTION COSTS

Chart 5

1980 = 100



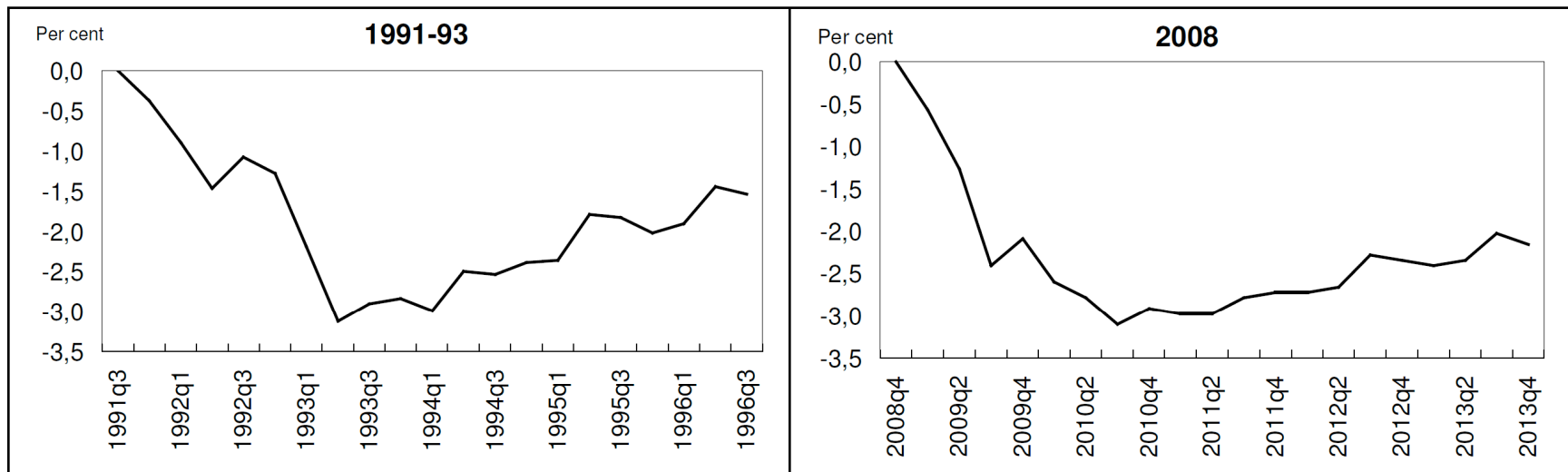
— Single-family houses, Denmark overall  
 — Commercial properties

— Single-family houses, Capital Region

Source: Abildgren and Thomsen (2011).

# A few pictures - 3

## Development in real GDP in Denmark corresponding to the extraordinary increases in the banks' write-down ratios in 1991-93 and 2008



Notes: The figures show the deviations from the baseline scenario in per cent. The effects shown are related to nonseasonally adjusted variables.

Source: Abildgren *et al.* (2011).

# Gelain, Lansing and Mendicino: House Prices, Credit Growth, and Excess Volatility: Implications for Monetary and Macroprudential Policy - 2

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7

## MaRs Research Question: How can the leverage cycle be described theoretically and empirically? - 2

- ◆ Theoretical model in the paper:
  - ◆ Basic structure: Standard Newkeynesian DSGE framework.
  - ◆ 30 % households with adaptive expectations (70 % with rational expectations) in order to generate the large swings in house prices and household debt that resemble the patterns observed in many countries.

# Gelain, Lansing and Mendicino: House Prices, Credit Growth, and Excess Volatility: Implications for Monetary and Macroprudential Policy - 3

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**MaRs Research Question: How can models help identify the appropriate macro-prudential policies to maintain systemic stability?**

Main findings in the paper:

- ◆ An interest-rate response to house price growth or credit growth can stabilize some economic variables (household debt and consumption). However, it can significantly magnify the volatility of others, particularly inflation.
- A reduction in the loan-to-value ratio substantially reduces the volatility of household debt, but the volatility of most other variables are slightly magnified.
- A loan-to-income constraint is the most effective tool for dampening overall excess volatility in the economy.



# Gelain, Lansing and Mendicino: House Prices, Credit Growth, and Excess Volatility: Implications for Monetary and Macroprudential Policy - 4

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## Suggestions for further research - 1:

- Alternative sources of financing
  - How can one ensure that the use of a loan-to-value ratio or a loan-to-income ratio a macroprudential policy instrument is not undermined by access to finance from other sources - domestically or abroad?
  - Future model extensions could be introduction of alternative sources of financing in the domestic economy and access to finance abroad in non-regulated countries.
- Why not evaluate the different policy option using a welfare measure - if you believe in the model?

# Gelain, Lansing and Mendicino: House Prices, Credit Growth, and Excess Volatility: Implications for Monetary and Macroprudential Policy - 5

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## Suggestions for further research - 2:

- The ratio of impatient household is 90 %. Seems to be very high?
- Part of the beauty of the model is its simplicity (30 % households with adaptive expectations). Alternative forms of expectation formation could be a topic for further research.
  - You might want to consider including a reference to Burnside, Eichenbaum and Sergio Rebelo (2011). In their model agents have heterogeneous expectations but change their views as the result of social interactions. Agents meet randomly and those with tighter priors on long-term fundamentals that drive house prices are more likely to convert other agents to their beliefs.

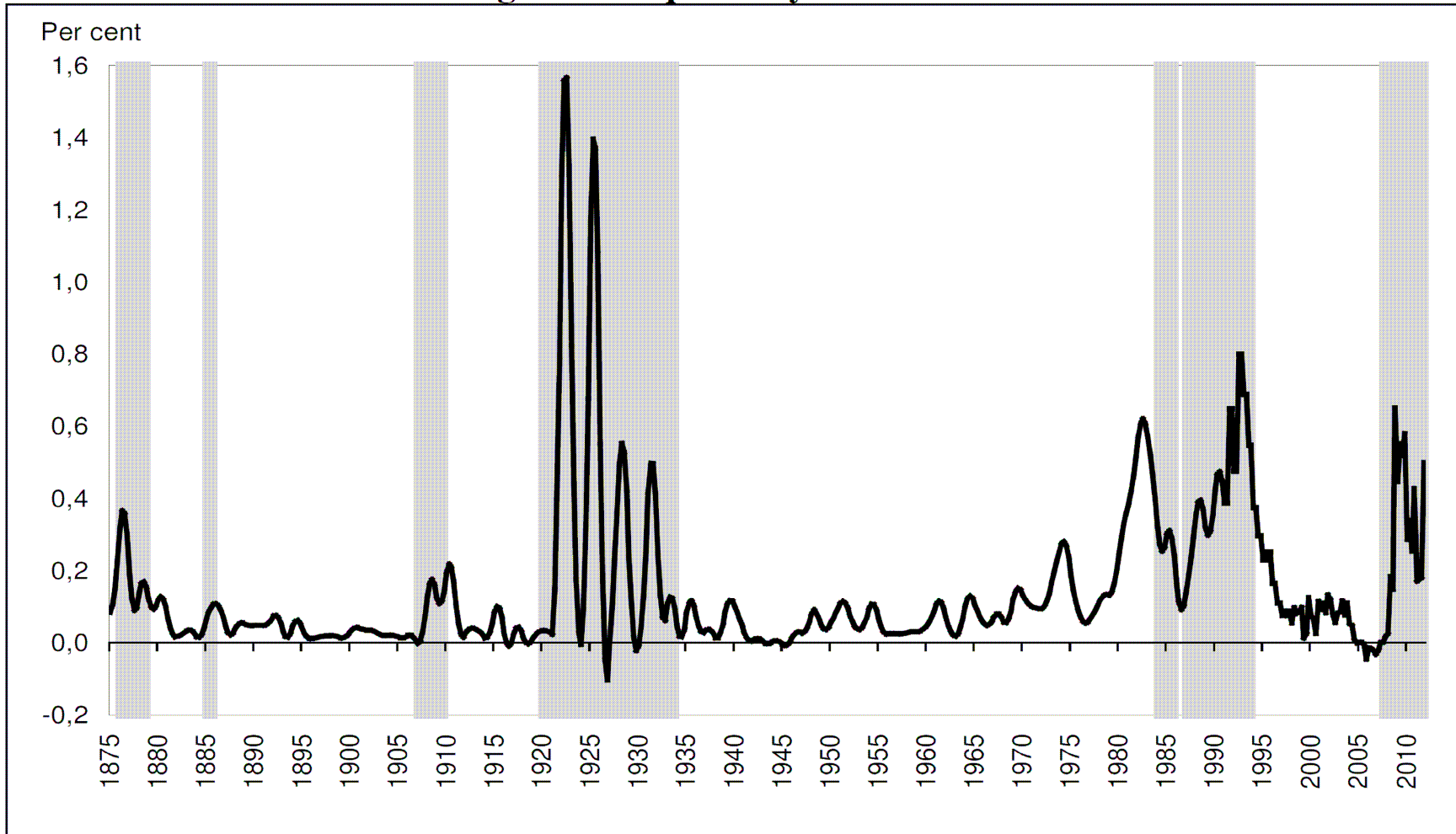
# Mésonnier and Stevanovic: Bank leverage shocks and the macroeconomy: a new look in a data-rich environment - 1<sup>11</sup>

**MaRs Research Question: How can the leverage cycle be described theoretically and empirically? - 1**

- ◆ Literature review in the paper:
  - ◆ Shocks to banks' capital ratio and the performance of the real economy seems to be related.
  - ◆ Problem 1: Identification. Banks' capital ratios are endogenous. And:
    - A negative exogenous shock to the banks' capital ratio during a crisis might originate from the banking sector, e.g. a sudden reassessment of the credit quality of the bank's loan portfolio unrelated to the economic development, an exogenous increase in the banking sectors' risk aversion or stricter regulatory capital requirements (exogenous "supply" shock to capital ratio).
    - However, a negative exogenous shock to the banks' capital ratio might also be the result of a greater uncertainty about the future economic outlook for households and the corporate sector than reflected in the current and past economic data or other information available to the banks at the beginning of the quarter (exogenous "demand" shock to the capital ratio).
  - Problem 2: The macroeconomic consequences of a supply shock to the banks' capital depends on the availability of alternative sources of finance.

## A few pictures - 4

**Danish commercial and savings banks' quarterly write-down ratio 1875-2011**

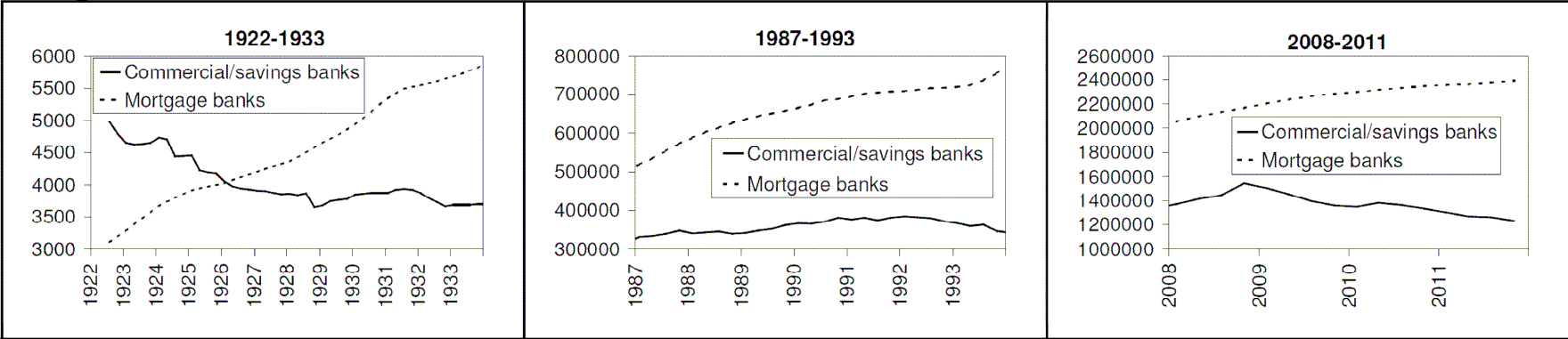


Notes: The grey markings indicate periods of banking crises.

Source: Abildgren *et al.* (2011); Abildgren (2012a); and the website of the Danish Financial Supervisory Authorities.

# A few pictures - 5

**Credit to the domestic non-bank sector extended by resident banks, million kroner end of quarter**



Source: Abildgren (2012b).

# Mésonnier and Stevanovic: Bank leverage shocks<sup>14</sup> and the macroeconomy: a new look in a data-rich environment - 2

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## MaRs Research Question: How can the leverage cycle be described theoretically and empirically? - 2

- ◆ Empirical approach in the paper:
  - ◆ Combine micro bank-level and macroeconomic data.
  - ◆ First step: Identify bank shocks to the banks' capital ratios at the micro level via panel data regressions on quarterly data 1986q1-2010q1 from 104 BHCs and aggregate them to an economy-wide measure of exogenous shocks to the banks' capital ratios.
  - ◆ Second step: Using a VAR framework to compile impulse responses of a large range of macroeconomic indicators to the banking sectors capital ratio,

# Mésonnier and Stevanovic: Bank leverage shocks<sup>15</sup> and the macroeconomy: a new look in a data-rich environment - 3

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**MaRs Research Questions: How does widespread financial instability affect the real economy? and What are the main transmission channels of financial instability at the aggregate level?**

- ◆ Key findings in the paper:
  - ◆ A negative shock to the banks' capita ratio implies a negative credit-supply shock.
  - ◆ A negative shock to the banks' capita ratio have a significant negative impact on the real economy.
  - ◆ However, the negative impact on the real economy is moderated by the non-financial sectors access to alternative sources of funding.

# Mésonnier and Stevanovic: Bank leverage shocks<sup>16</sup> and the macroeconomy: a new look in a data-rich environment - 4

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## Suggestions for further research:

- ◆ The authors have given the measure of exogenous shocks to the banks' capital ratios a great deal of attention. However, as mentioned in the paper:

“the innovations on which we base our aggregate capital ratio shock series may reflect a variety of disturbances: stricter requirements imposed by the regulator or market discipline is one possibility, but another could be unexpected profits and losses due to some asset price fluctuations during the quarter going beyond expectations based on the information available to bank managers at the beginning of the quarter or not reflected in contemporaneous shocks affecting the real economy.”

As acknowledged by the authors we are thus still to some degree left with the issue of separating “supply” and “demand” shocks to the capital ratio.

- ◆ Ways forward to separate “supply” and “demand” shocks might include:
  - ◆ The financing-mix approach applied by Kashyap, Stein and Wilcox (1993).
  - ◆ Sign-restrictions on the VAR.



# Mésonnier and Stevanovic: Bank leverage shocks<sup>17</sup> and the macroeconomy: a new look in a data-rich environment - 5

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## Suggestions for further research - 2:

- ◆ Another identification issue:
  - ◆ There has been comprehensive government/central bank interventions to safeguard financial stability during the crises.
  - ◆ What are the real effects of shocks to the banks capital ratios in the absence of government/central bank support measures?

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**Thank you for your attention!**



# References

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