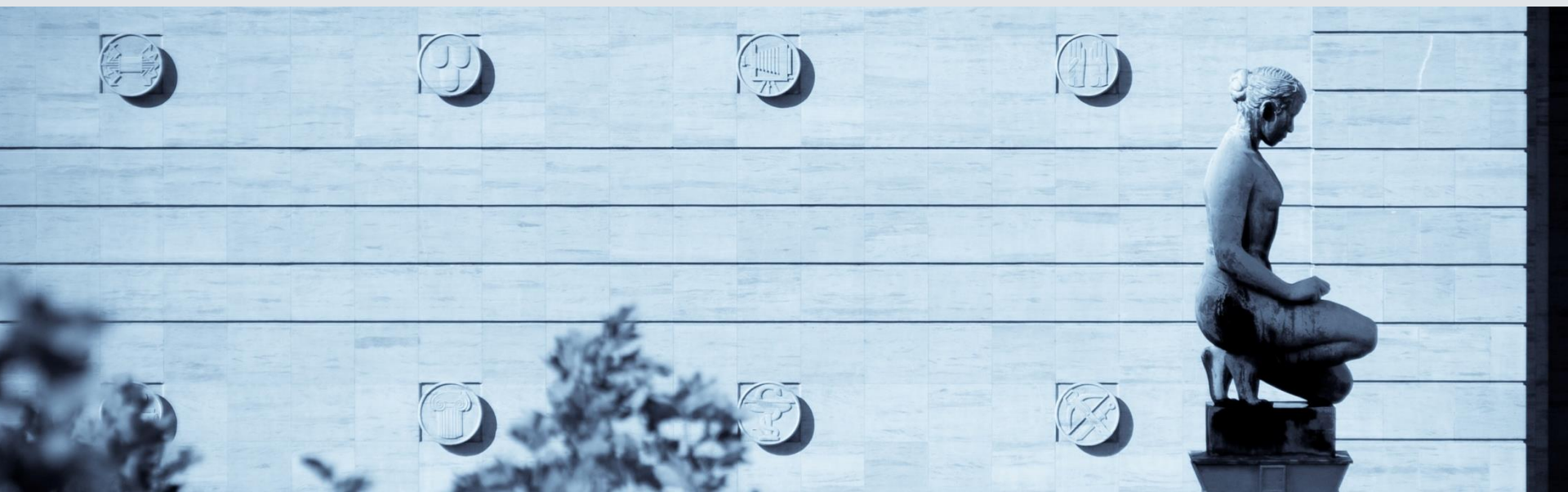


# The Transmission Mechanism of Credit Support Policies in the Euro Area

Fourth Research Workshop of the TF on Banking Analysis for Monetary Policy of the MPC

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These are only our views and not necessarily those of the NBB or the Eurosystem.

 Banque **Nationale** Bank  
DE BELGIQUE VAN BELGIË

Eurosystem

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# Motivation

- ▶ Since the GFC, the Eurosystem has not only used its policy rates as an active policy instrument but also its balance sheet. Prior to the APP, these were mainly measures to support the flow of credit to the private sector
  - E.g. fixed interest rate with full allotment, extending maturity of LTRO's, enlarged pool of collateral, purchases of covered bonds and ABS, TLTROs, ...
    1. Have these “credit support policies” been **effective in stimulating credit flows** to the private sector?
    2. If so, what are the exact **transmission mechanisms** of these policies? What bank characteristics (size, liquidity, retail deposit reliance, capitalisation) determine the transmission?
- ▶ Use monthly dataset of **131 individual euro area banks** by merging different sources of data over sample period **2007M7–2015M10**



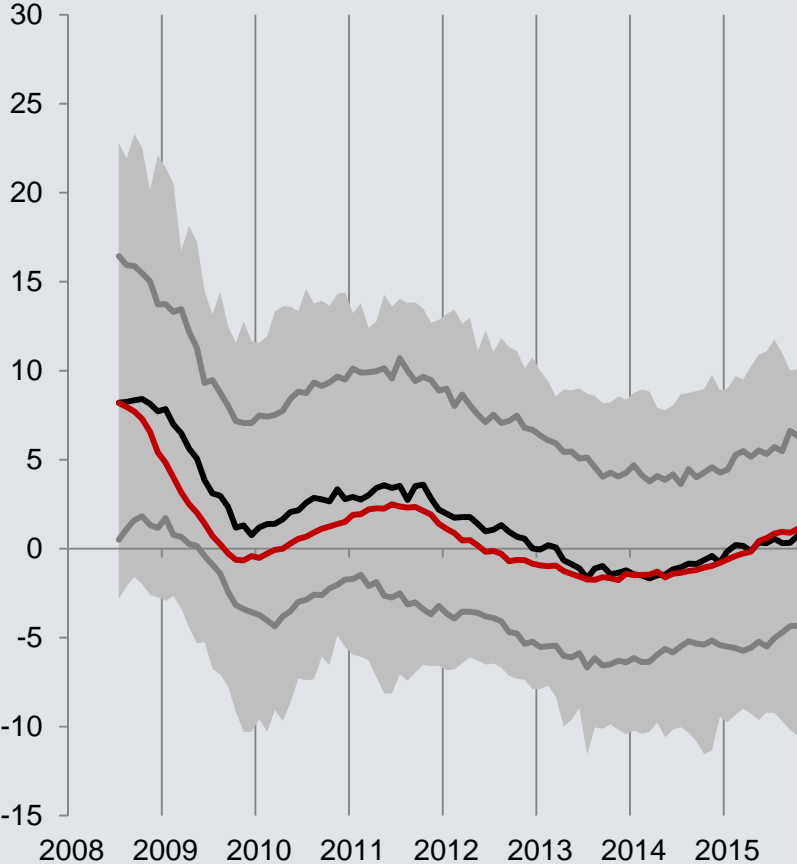
# Most of you are familiar with the data that we use...

- ▶ **Two monthly databases compiled by the ECB and NCBs and a proprietary one**
  - **Individual balance sheet items (e.g. **volume of lending**) of 281 banks and **interest rates** of 223 banks**
  - **SNL Financial is the source for extra balance sheet indicators (capitalisation, ...)**
- ▶ **After transformations and cleaning of dataset, 131 banks of 19 euro area countries can be used for the estimations**
  - **Represent 37% of total assets of banking sector and 43% of total lending, while correlation of monthly changes with EA aggregates is 0.73 and 0.88**

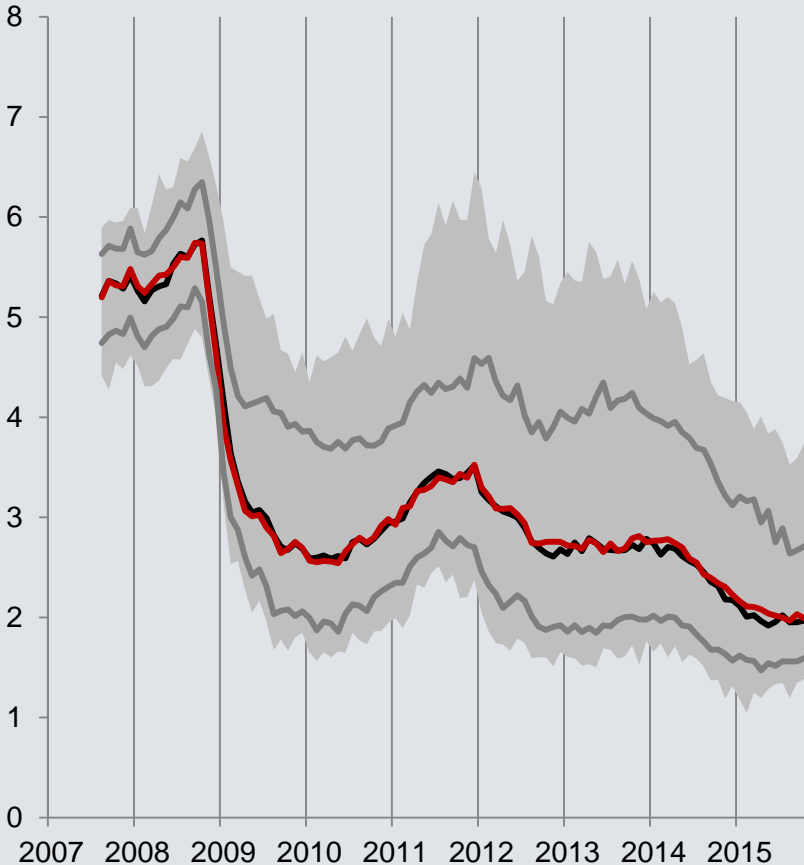


# Representativeness of bank level data

### Annual growth rate of bank lending to firms and households



### Composite bank lending rate to firms and households



■ 5th and 95th percentiles  
— 16th and 84th percentiles

— median of individual banks  
— euro area aggregate



# Methodology and choice of “credit support shock”

- ▶ Jordà’s (2005) local projection method for estimating impulse response at horizon  $h$

$$Z_{i,t+h} = \alpha_{i,h} + \delta_{i,h}(L)Z_{i,t-1} + \rho_{i,h}(L)X_{t-1} + \theta_h MPshock_t + \varepsilon_{i,t+h}$$



**Impact of shock  
at horizon  $h$**

- $Z_i$ : lending rates and volume of lending to firms and households by bank  $i$
- $X$ : set of control variables (macroeconomic, financial and monetary policy variables)
- $MPshock$ : **Exogenous ECB balance sheet shocks** (+ growth rate of total assets of ECB balance sheet as a robustness check in the paper)



# Why do we use local projections?

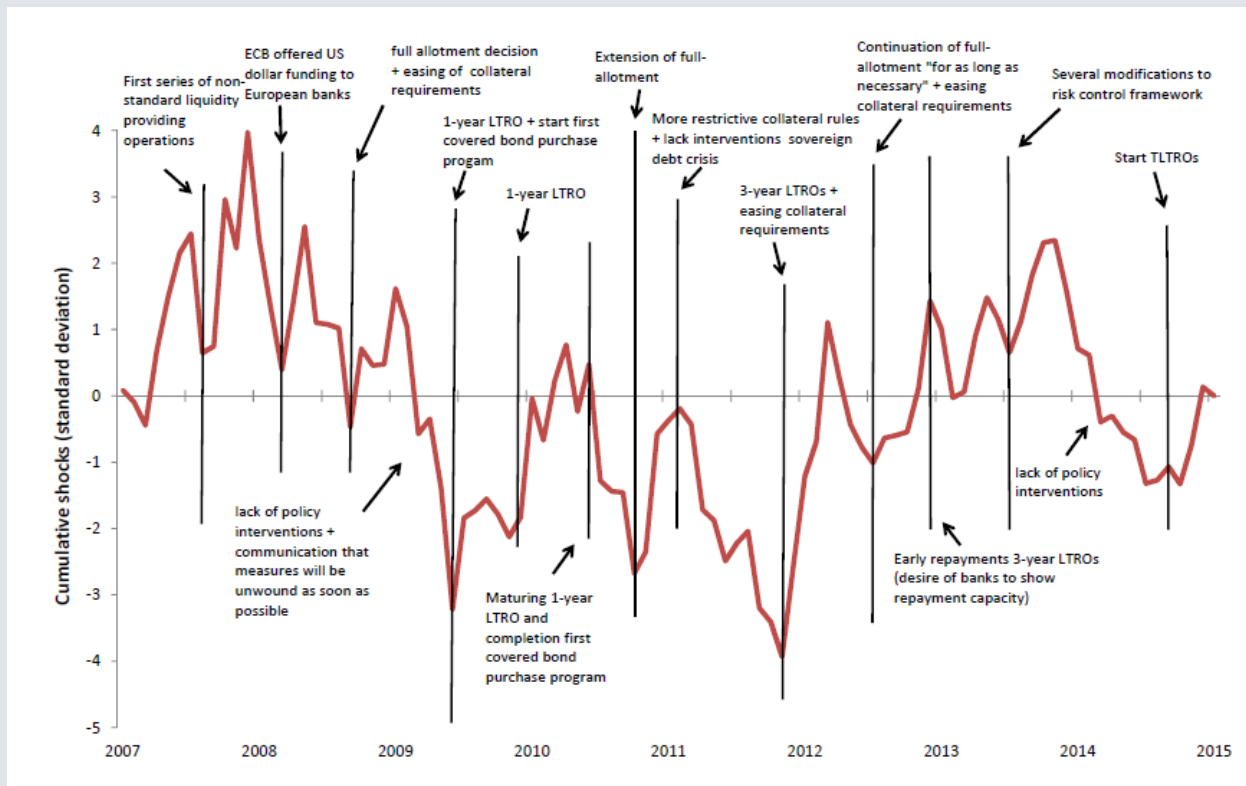
- ▶ **It allows to investigate the timing and dynamic impact of monetary policy shocks at the bank level**
- ▶ **More robust to misspecification (contrast to VARs) but erratic response patterns**
- ▶ **It allows to make impulse responses dependent on bank characteristics:**
  - **All characteristics can be included simultaneously (better than sample splits because they are correlated)**
  - **State of the bank at time of shock matters, not the average over the sample**
  - **Interaction between bank characteristics can be examined**



# Balance sheet innovations borrowed from Boeckx, Dossche and Peersman (IJCB, 2017)

- ▶ They estimate a structural VAR to uncover exogenous shocks to the ECB balance sheet:

Output	Prices	CB Total Assets	CISS indicator	EONIA-MRO spread	MRO-rate
0	0	$\geq 0$	$\leq 0$	$\leq 0$	0

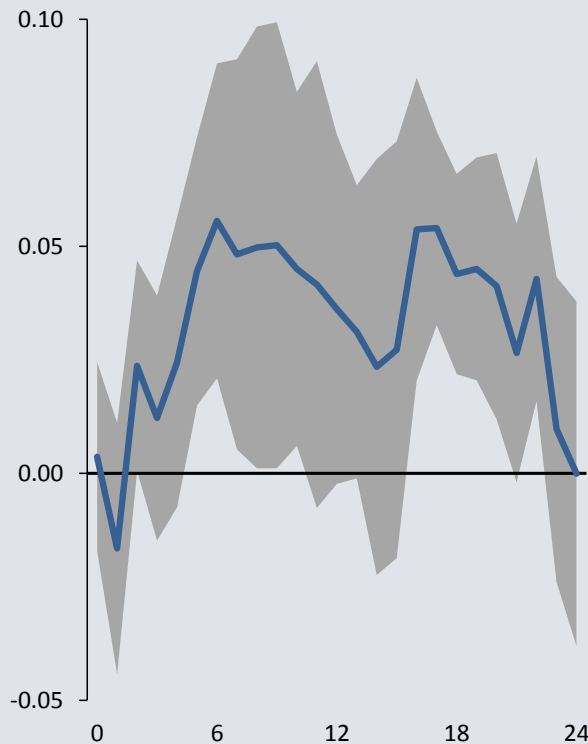


# Panel results: a 1.5% balance sheet increase raises credit supply (volumes up, rates down)

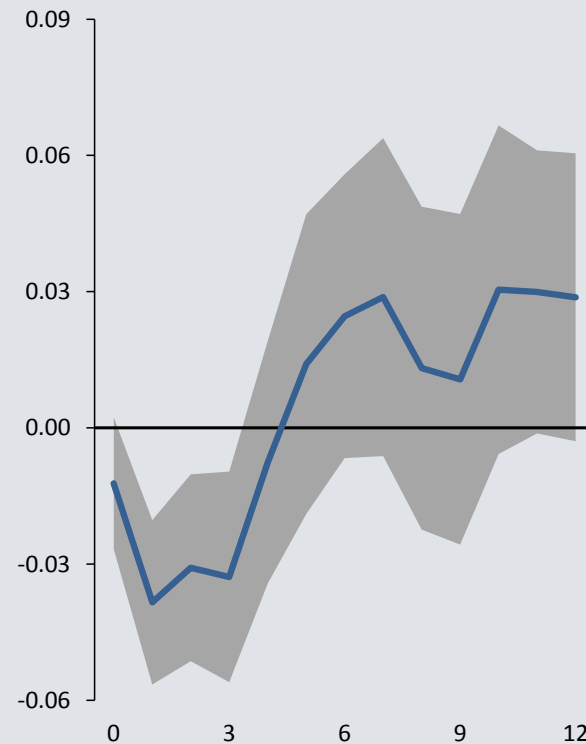
- ▶ Fixed effects, heterogeneous slopes X-variables, 90% confidence bands

$$Z_{i,t+h} = \alpha_{i,h} + \delta_{i,h}(L)Z_{i,t-1} + \rho_{i,h}(L)X_{t-1} + \theta_h MPshock_t + \varepsilon_{i,t+h}$$

Volume of lending



Lending rates





# Transmission mechanisms of credit easing policies

- ▶ **Baseline local projections allowing for interaction effects**

$$Z_{i,t+h} = \alpha_{i,h} + \delta_{i,h}(L)Z_{i,t-1} + \rho_{i,h}(L)X_{t-1} + \theta_{i,h}MPshock_t + \varepsilon_{i,t+h}$$

$$\theta_{i,h} = \gamma_{0,h} + \sum_j \gamma_{j,h} DUMC_j + \sum_k \gamma_{k,h} (characteristic(k)_{i,t-1})$$

- ▶ **Are there important differences in the way banks with varying characteristics respond to credit easing policies?**
  - **Characteristic(k) captures a specific channel, DUMC<sub>j</sub> is a country dummy to take account of country-specific effects on the impact of credit support policies**

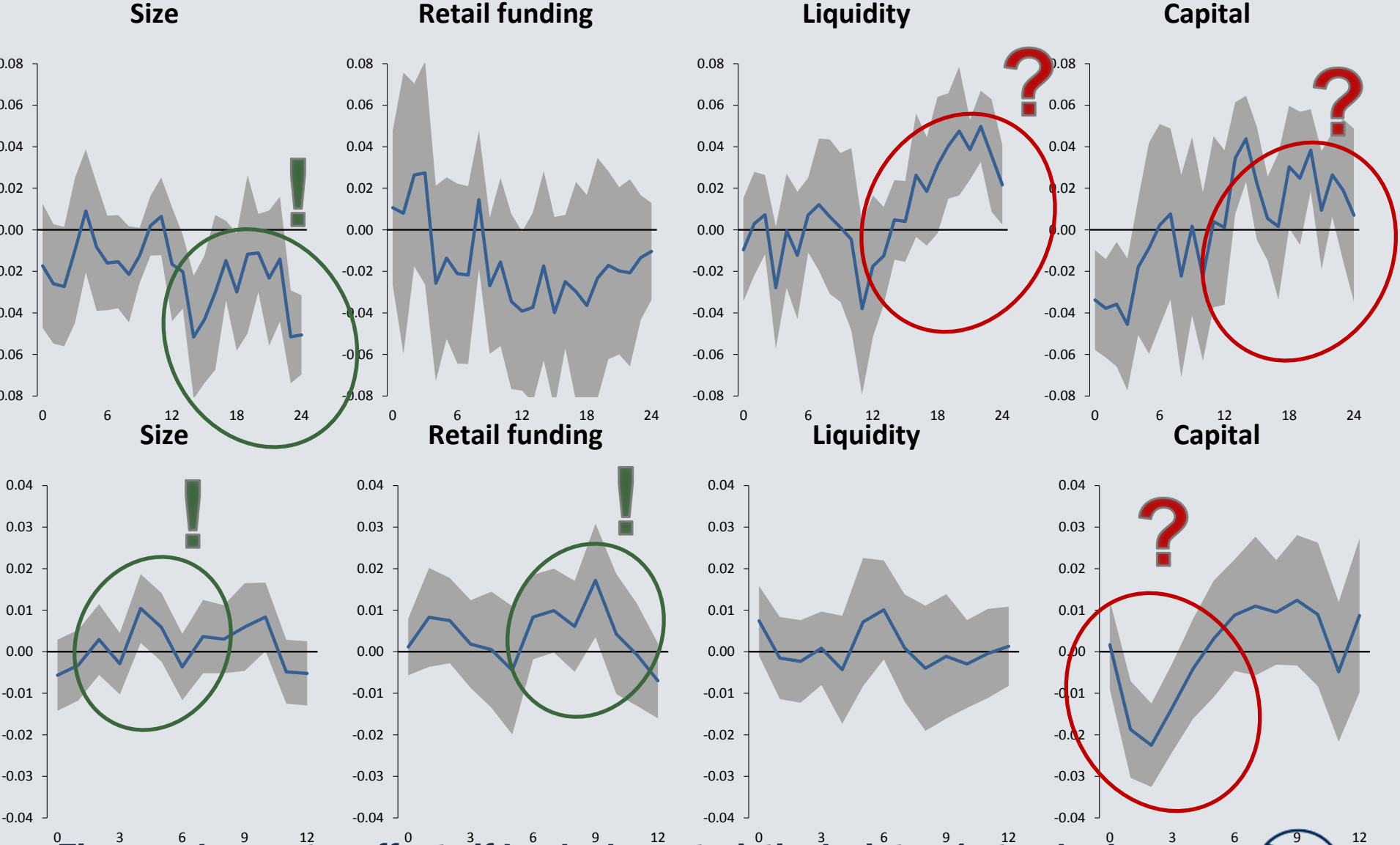


# Bank lending view of monetary transmission

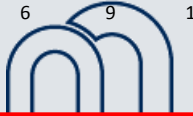
- ▶ When financial markets are impaired and banks have difficulties to raise unsecured external funds for their lending activities, the supply of bank loans will be more constrained for:
  1. **Smaller** banks (asymmetric information or not benefitting from “too big to fail”)
    - $100 \cdot \log(\text{total assets})$  from iBSI
  2. Banks with a **smaller deposit base**
    - Retail deposits/retail lending from iBSI
  3. Banks with **less liquid** balance sheets
    - Liquid assets/total assets from SNL (yearly, not available for all banks)
  4. Banks with weaker balance sheets, i.e. **low-capitalized** banks
    - Equity/total assets from SNL (yearly)
  
- ▶ Policies that facilitate access to central bank liquidity and relax the conditions to get it, should also primarily shift loan supply of these banks



# Results for volume of lending (top) and lending rates (bottom)



**Figures show extra effects if bank characteristic deviates 1 standard deviation from sample mean: magnitudes are economically meaningful!**



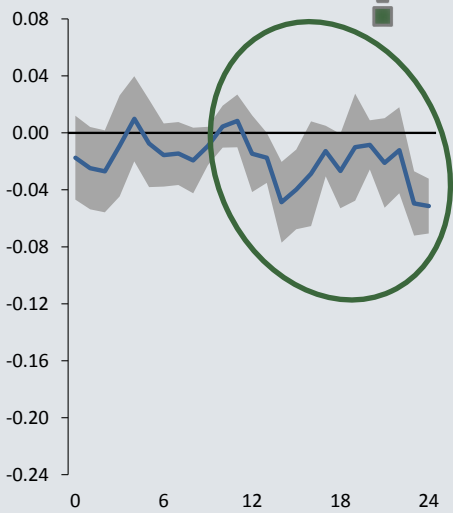
# The role of (low) capital

- ▶ **Low-capitalized banks are expected to benefit more of credit support policies because they have difficulties to raise unsecured external funds...**
- ▶ **... but low levels of capital could also encompass a drag on the ability to increase loan supply (Van den Heuvel, Bernanke & Lown, ...)**
  - **Banks could extend loans up to a certain multiple of their capital, determined by regulatory capital requirements or by market discipline: some fundamental or ultimate constraint**
- ▶ **Analyze the role of capital using two methods:**
  - **Include dummy variable for banks with capital ratio in the lowest quartile of the sample: does closeness to regulatory threshold limits ability to increase lending?**
  - **Include (size\*capital), (liquidity\*capital) and (retail\*capital) as explanatory variables: is there a drag of bank capital on the other channels?**

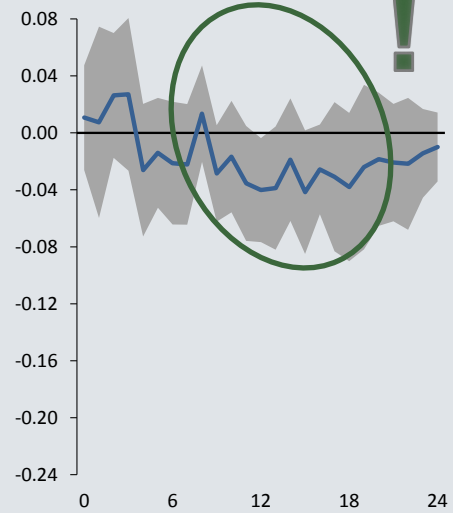


# Results for volume of lending and low capital dummy

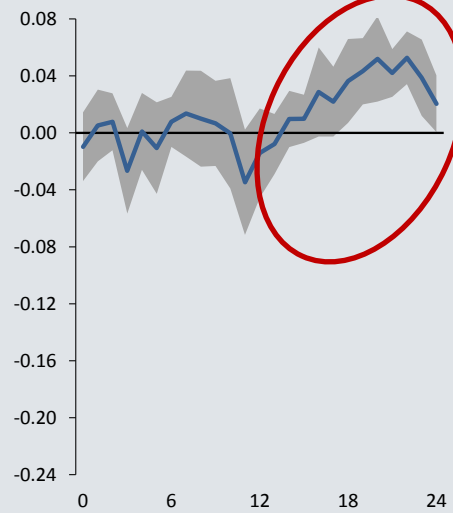
Size



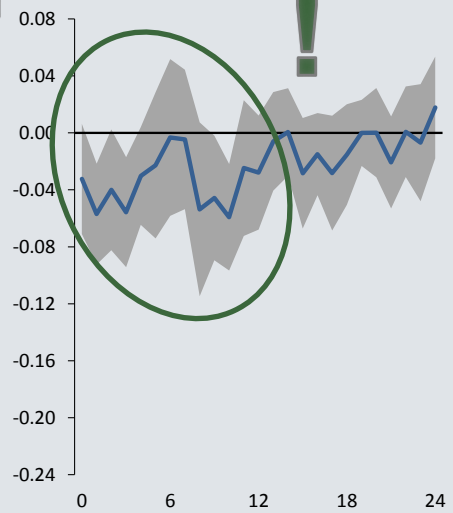
Retail funding



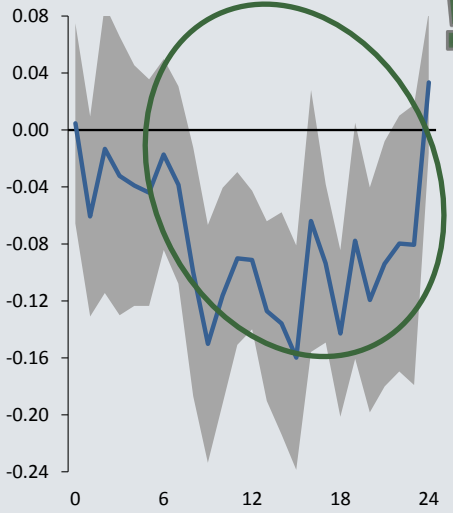
Liquidity



Capital

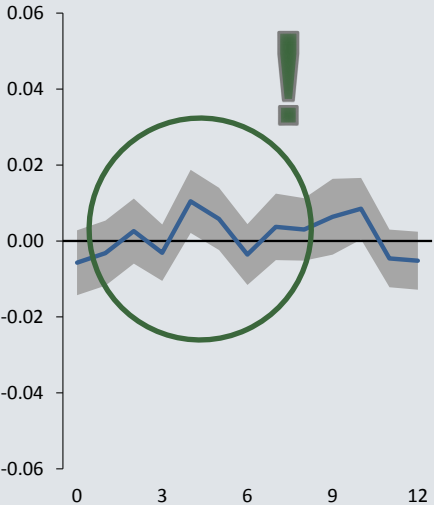


Low Capital dummy

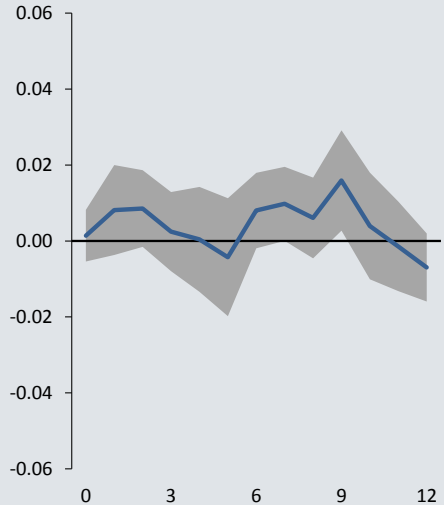


# Results for lending rates and low capital dummy

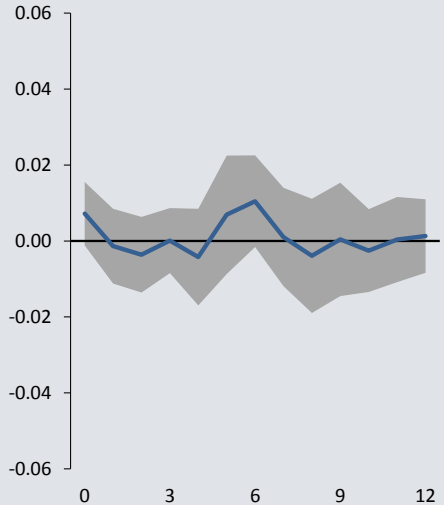
### Size



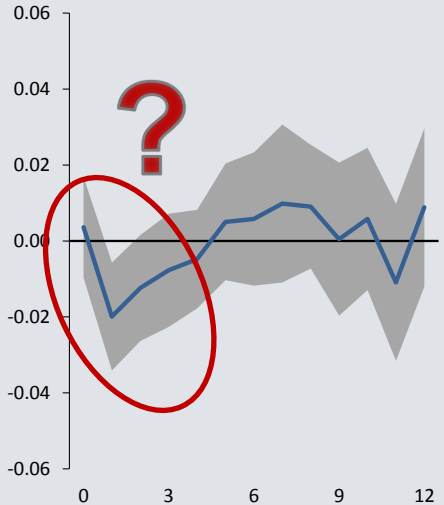
### Retail funding



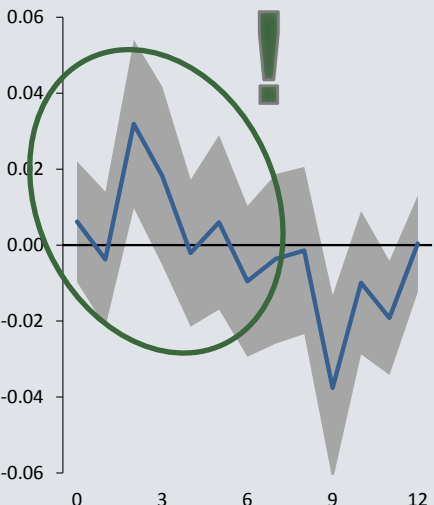
### Liquidity



### Capital



### Low Capital dummy

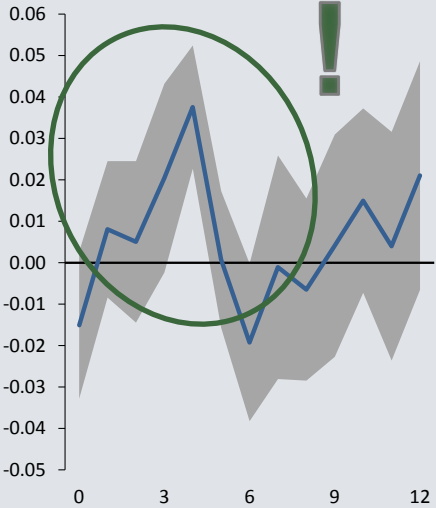


# Results for volume of lending and interaction of capital

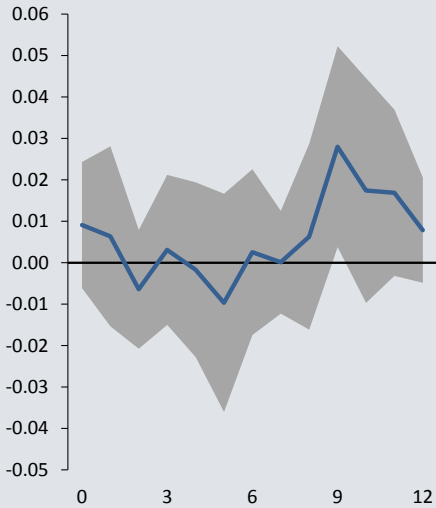


# Results for lending rates and interaction of capital

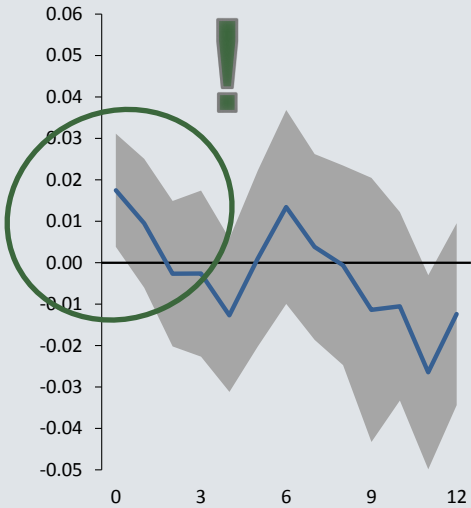
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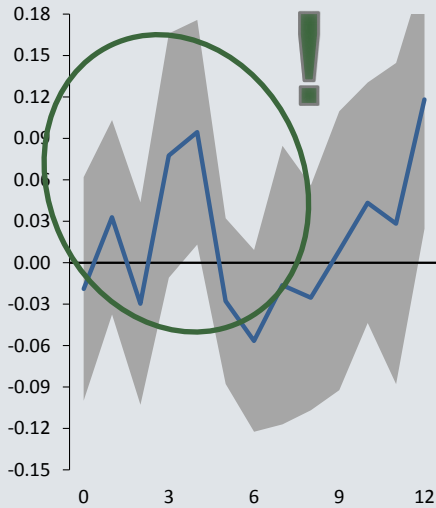
Retail funding



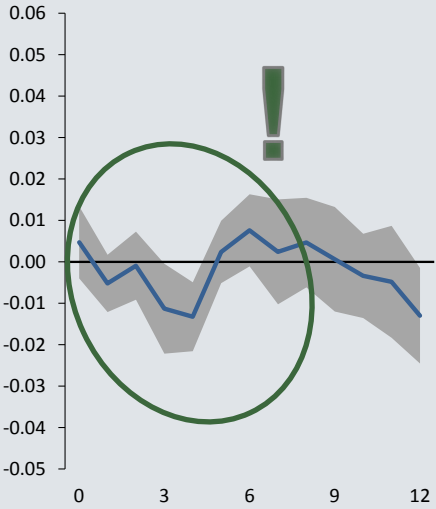
Liquidity



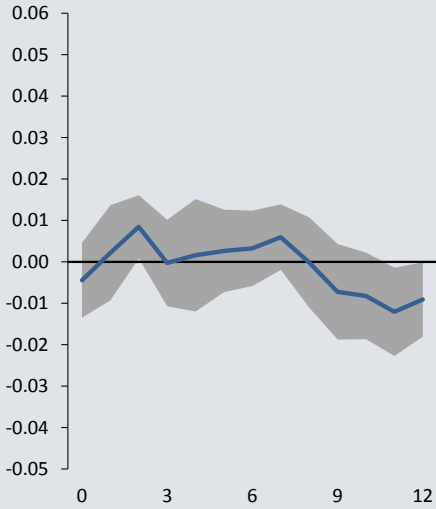
Capital



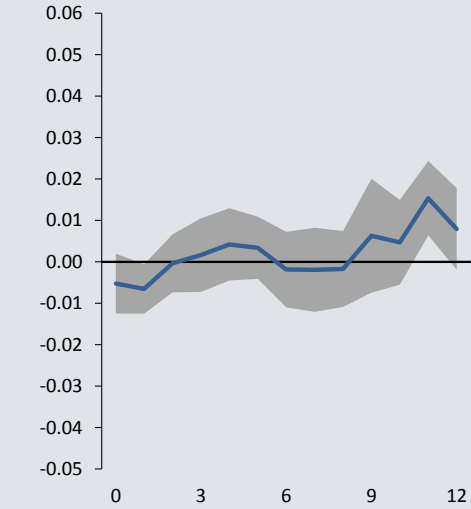
Size \* Capital



Retail funding \* Capital



Liquidity \* Capital





# Conclusions

- ▶ **Credit support policies of ECB have been effective to stimulate bank lending to the private sector in the aftermath of the financial crisis**
- ▶ **Policies transmitted via size, liquidity, retail funding and capital channel: in line with the “bank lending view” of monetary transmission**
- ▶ **Role of capital is ambiguous and nonlinear: lower capital implies a stronger capital channel, but mitigates size, retail and liquidity channel considerably**
  - **On average, drag effect of capital even dominated during the sample period, in particular for banks with low capital ratios**
  - **Increasing bank capitalization should enhance the effectiveness of credit support policies**



