The effect of Loan Supply Shocks on Bank Lending and the Real Economy: Evidence from Slovenia

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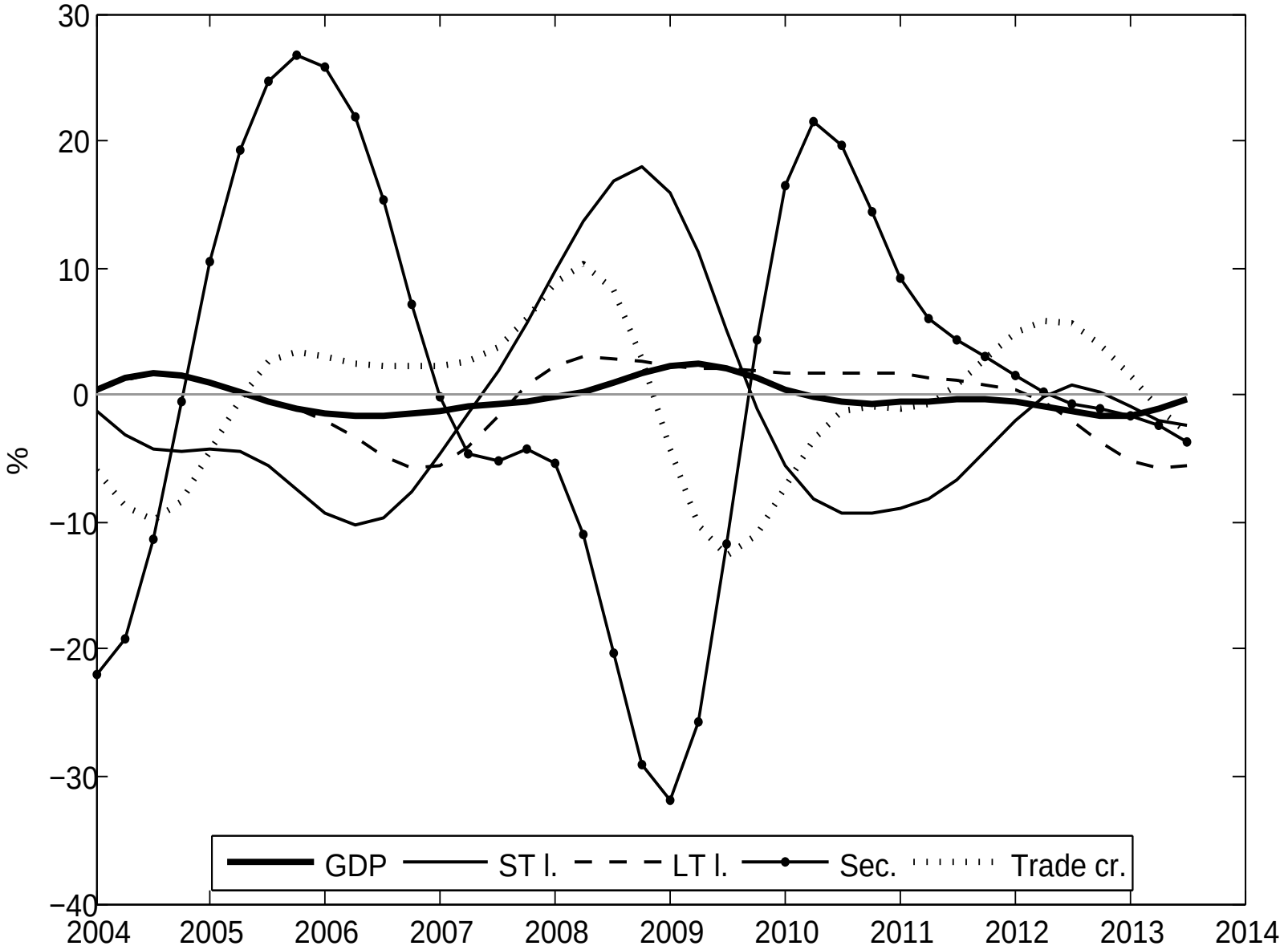
Not to be taken (too) seriously...

The views contained here are those of the authors, and not necessarily those of the Bank of Slovenia.

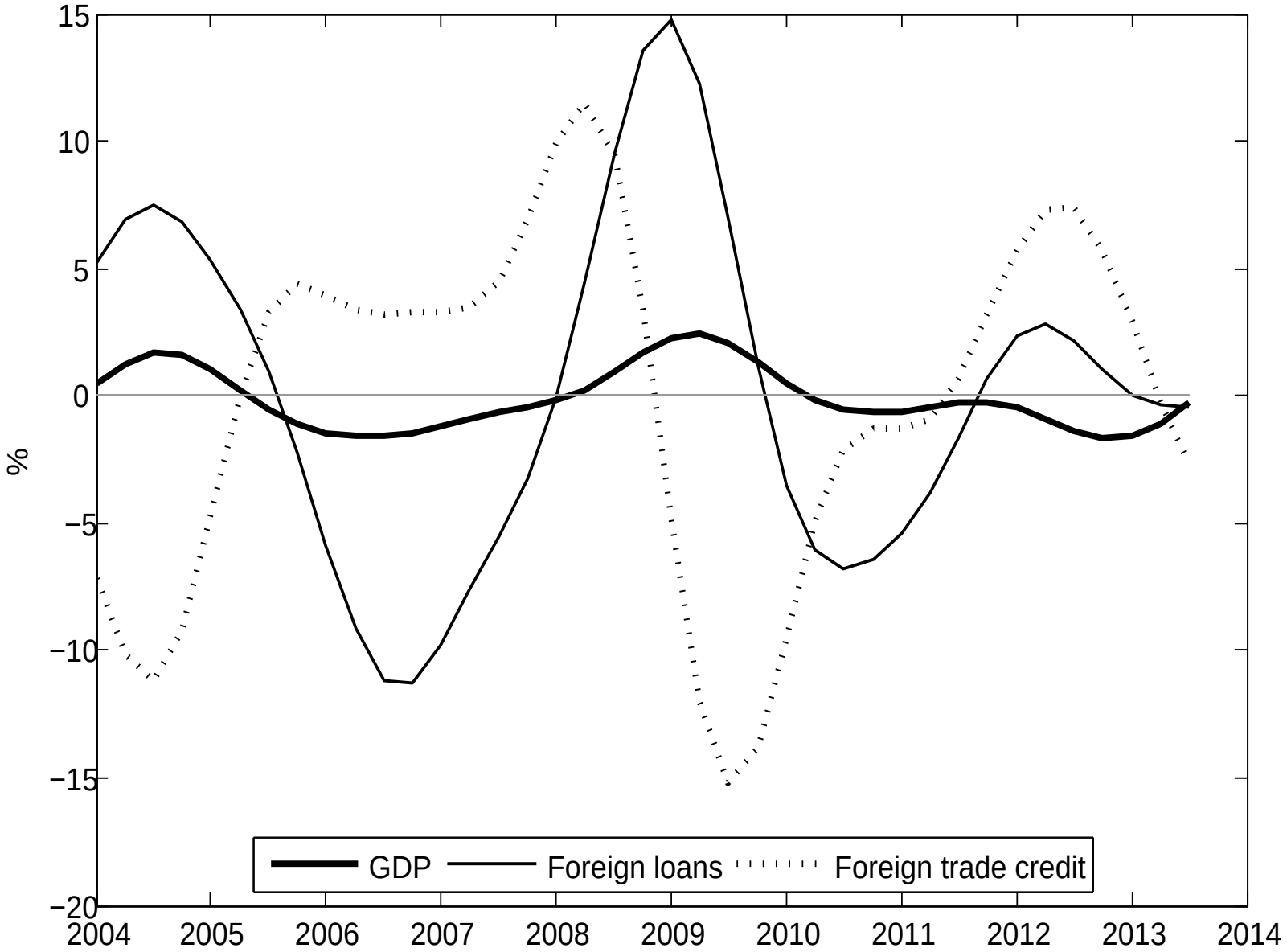
Motivation

- Financial intermediation in Slovenia goes mainly through the banking sector
- Recent boom-bust episode is shadowed in credit boom-bust
- Strong flows of foreign debt capital through the banking sector
- Interesting to look at:
  - Monetary policy transmission through the bank lending channel
  - Transmission of shocks to bank funding
  - Transmission of financial shocks coming from abroad

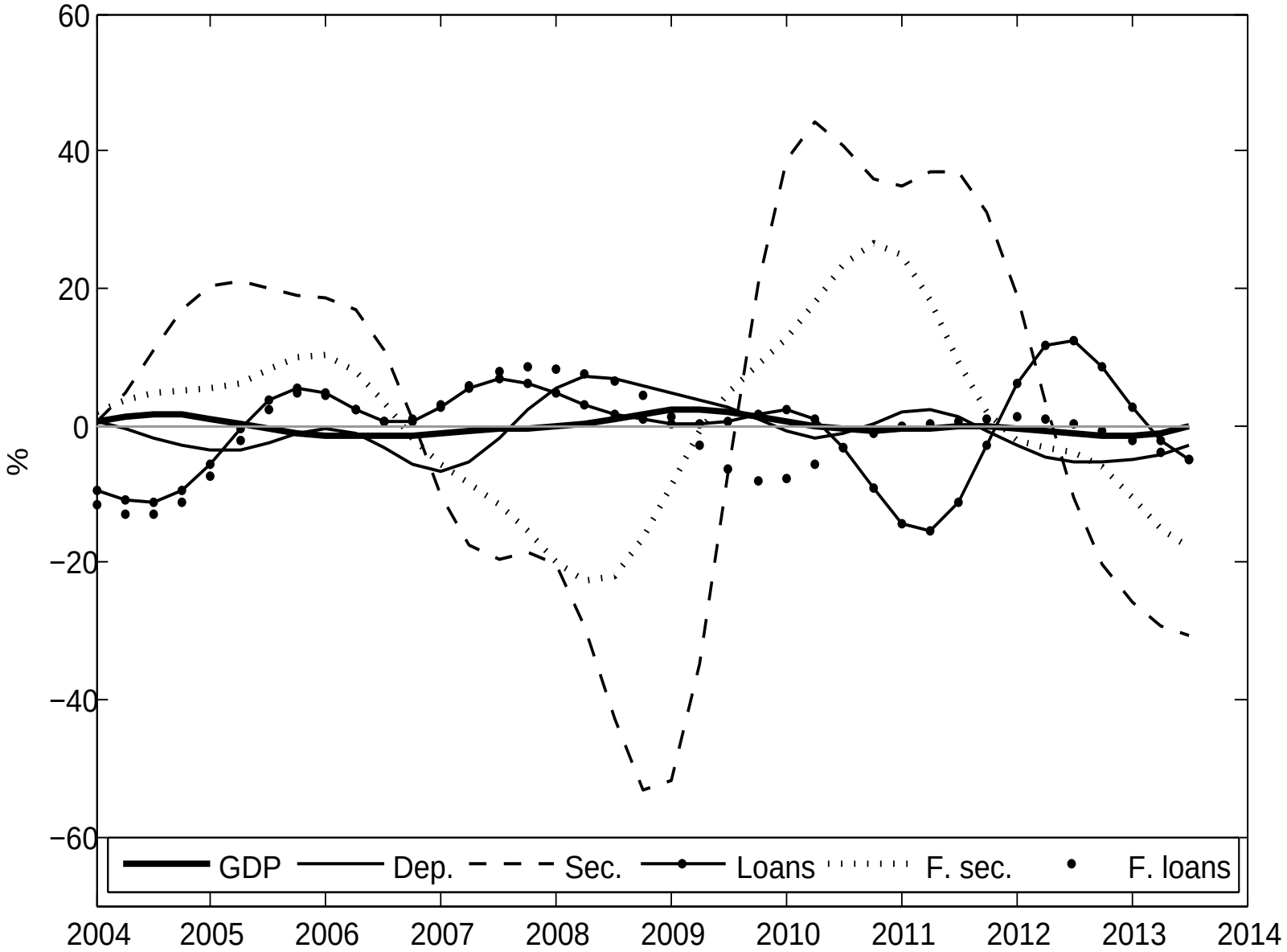
Cyclical components of firm debt and real GDP



Cyclical components of firm foreign debt and real GDP



Cyclical components of bank debt and real GDP



Basic business cycle statistics

	Relative stdev.	Corr. with GDP
Real GDP	1	1
Trade credit (firms)	4.85	-0.63
Securities (firms)	12.94	-0.61
ST loans (firms)	6.56	0.54
LT loans (firms)	2.37	0.70
Foreign loans (firms)	5.63	0.80
Foreign trade credit (firms)	5.79	-0.65
Deposits (banks)	3.09	0.56
Securities (banks)	23.11	-0.22
Loans (banks)	5.76	-0.33
Foreign securities (banks)	10.79	-0.07
Foreign loans (banks)	4.92	-0.43

Method

- Need to condition on shocks to provide a more structured interpretation
- Estimate the following VAR:

$$Y_t = c + t + A_0 D_t + \sum_{i=1}^{q} A_i Y_{t-i} + u_t,$$

- Use identifying assumptions to identify a subgroup of shocks (partial identification)

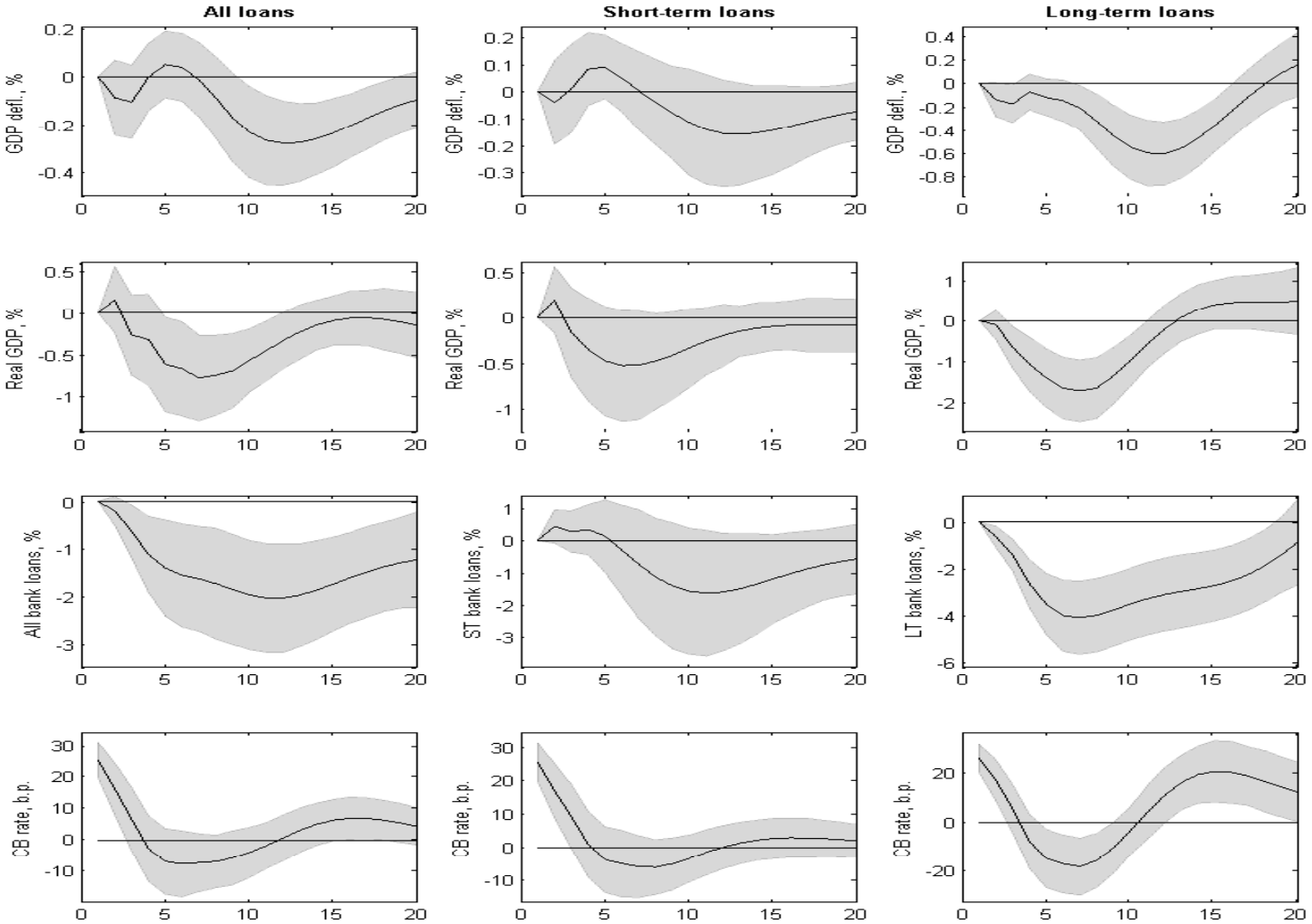
Transmission mechanism of monetary policy

- Interest rate channel - the money view
  - Monetary authority affects the real activity through banks' reserves (e.g. Bernanke, 1988, Kashyap and Stein, 1994)
  - Banks have only two assets (bonds and reserves)
  - Reduction in reserves reduces demand deposits which reduces their holdings of bonds. As a result, interest rates increases, and in an environment of nominal rigidities, also the real interest rates
  - This has real effects on interest sensitive expenditure, such as investment, and ultimately, on the real activity
- Bank lending channel
  - There are three necessary conditions for the existence of THE Bank lending channel (Kashyap and Stein, 1994)
    - The central bank should be able to affect the supply of bank loans (through bank reserves)
    - Loans should not be perfect substitutes with market debt for firms
    - Banks should not be able to offset the reduction in deposits by resorting to the alternative sources of financing, or by reducing their holding of bonds

Identification

- Identification of monetary policy shock
  - Standard recursive procedure (Christiano, Eichenbaum, Evans, 1999)
  - We strengthen the identification assumption by using the average of the policy rate *in the last month of the quarter*
  - Caveat: Monetary policy essentially exogenous to developments in Slovenia (results robust to inclusion of EA GDP)
- Identification of bank lending shock
  - Proceed as Kashyap, Stein, Wilcox (1993), Oliner and Rudebusch (1996)
  - Advantage/difficulty: All firms in Slovenia are 'small'
  - Only one meaningful alternative to bank loans (trade credit)
  - Very tricky - many assumptions have to be fulfilled!

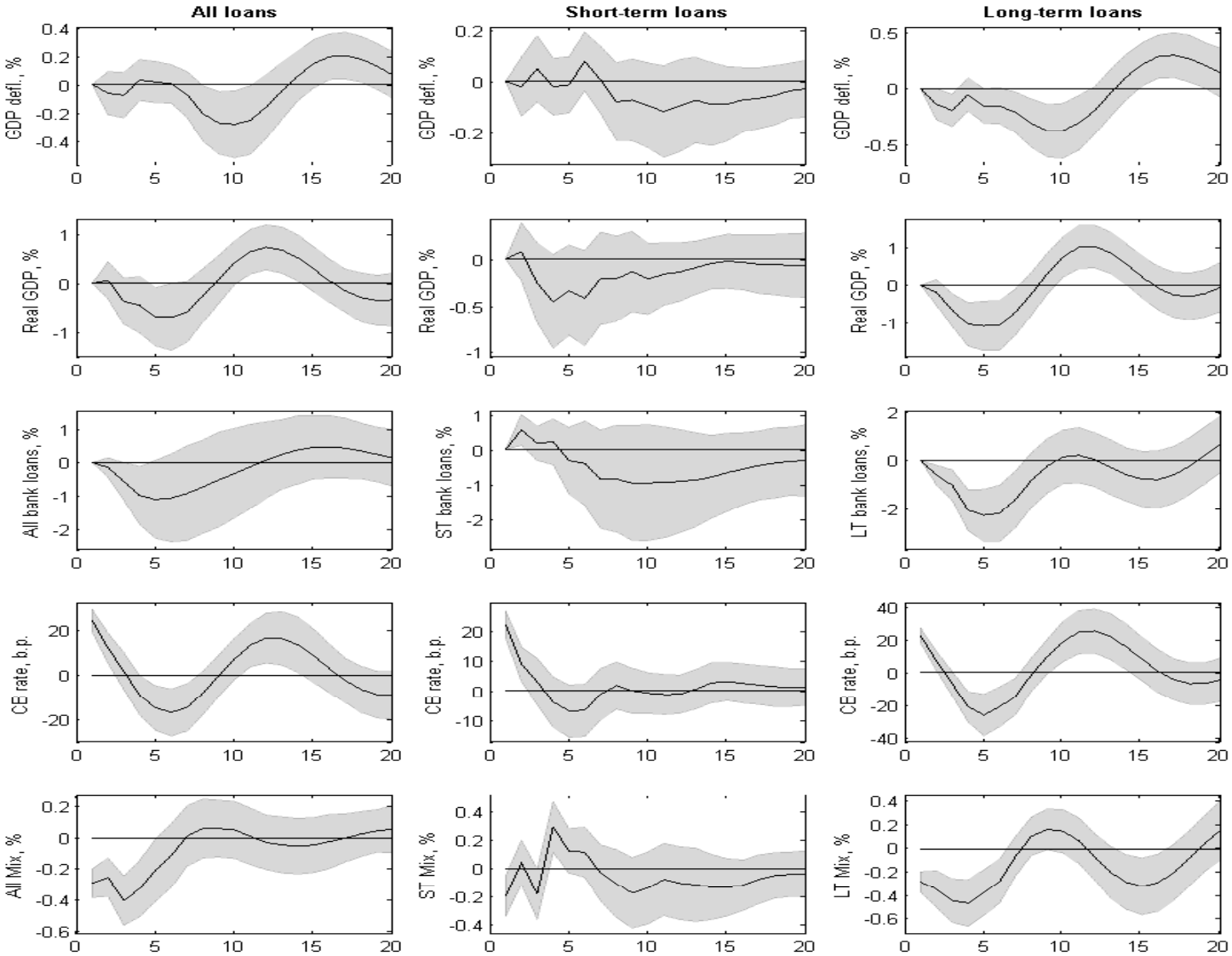
Interest rate channel



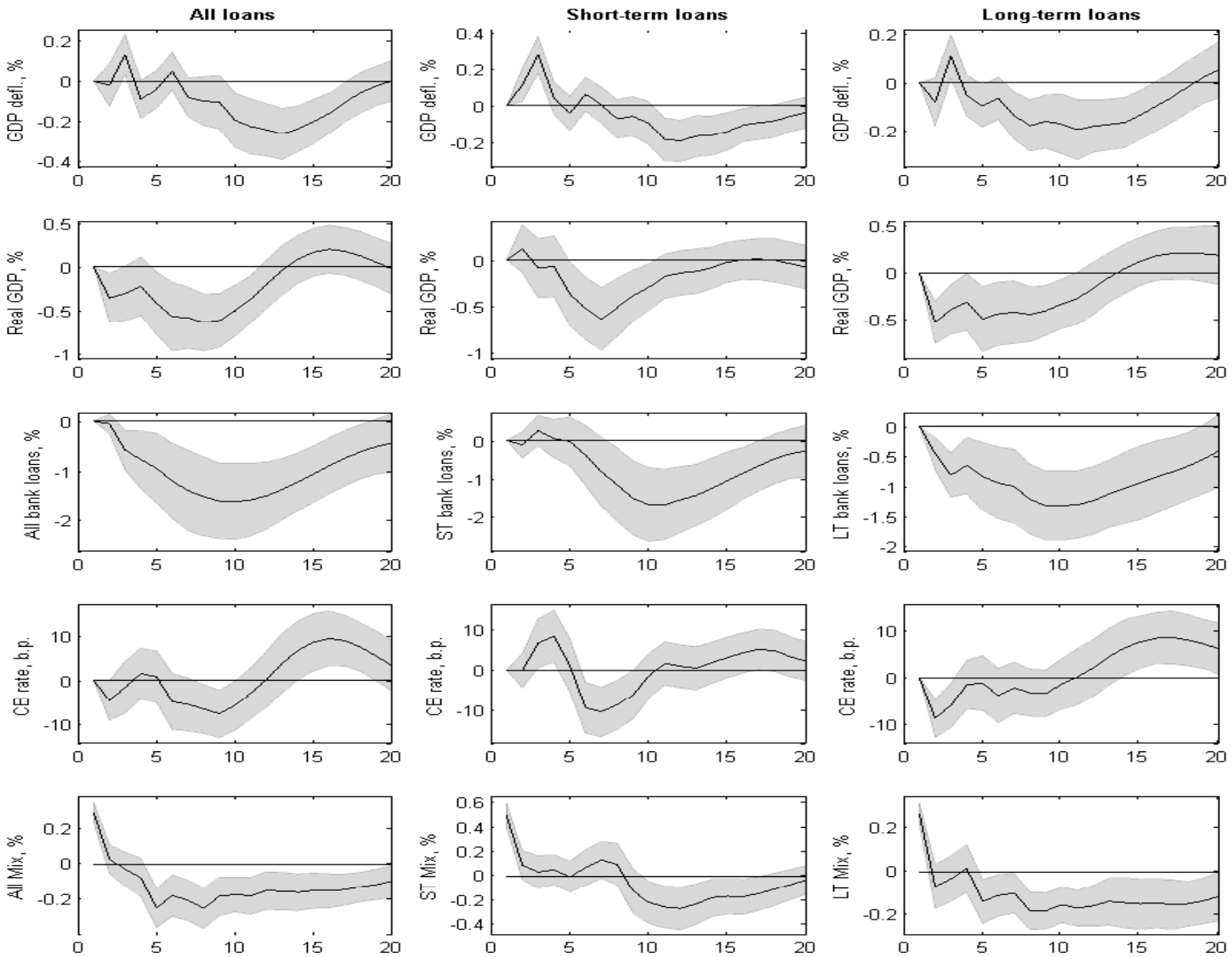
Definitions and identification

- We need an economically meaningful alternative to bank loans
- Securities not economically meaningful, subject to distributional effects. The only quantitatively important alternative is trade credit.
- Defining the Mix
  - All loans vs. all loans, securities, trade credit
  - Short-term loans vs. short-term loans, short-term securities, trade credit
  - Long-term loans vs. long-term loans, long-term securities, trade credit

Bank lending channel - monetary policy



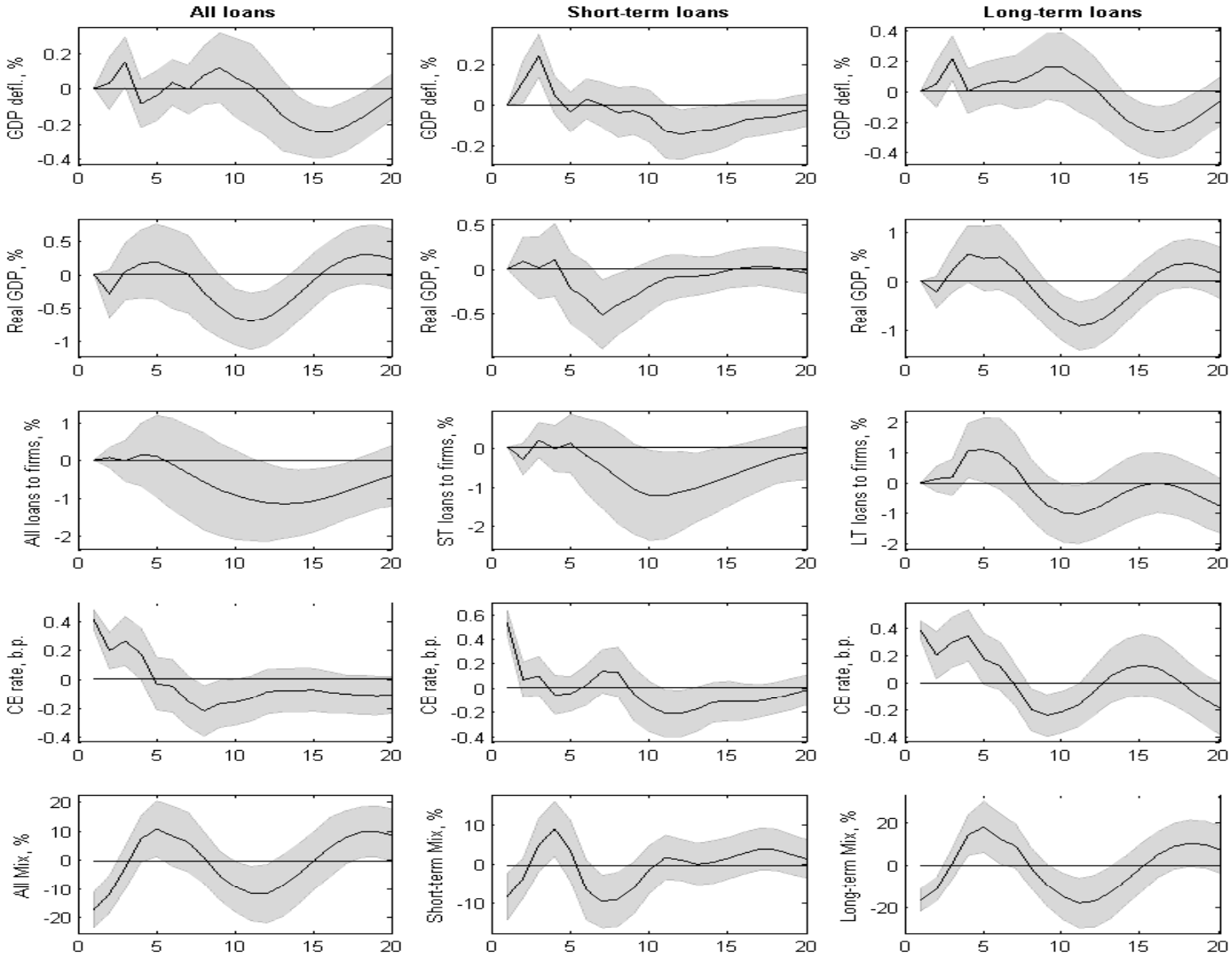
Bank lending channel - ‘supply’ shock I



Interpretation

- Existence of the bank lending channel
  - Inclusion of the Mix preserves ‘textbook’ responses to a monetary policy shock
  - Response of the Mix has - for long-term loans - the correct sign, statistically significant
  - For short-term loans, sign changes (redistribution?)
- Strength and direction of the bank lending channel
  - Seems that the channel is strong...
  - ...but the sign is wrong.
  - Possible exception are short-term loans, but there the response of the Mix to the monetary policy shock is less significant
  - But careful - results are sensitive to ordering in the VAR

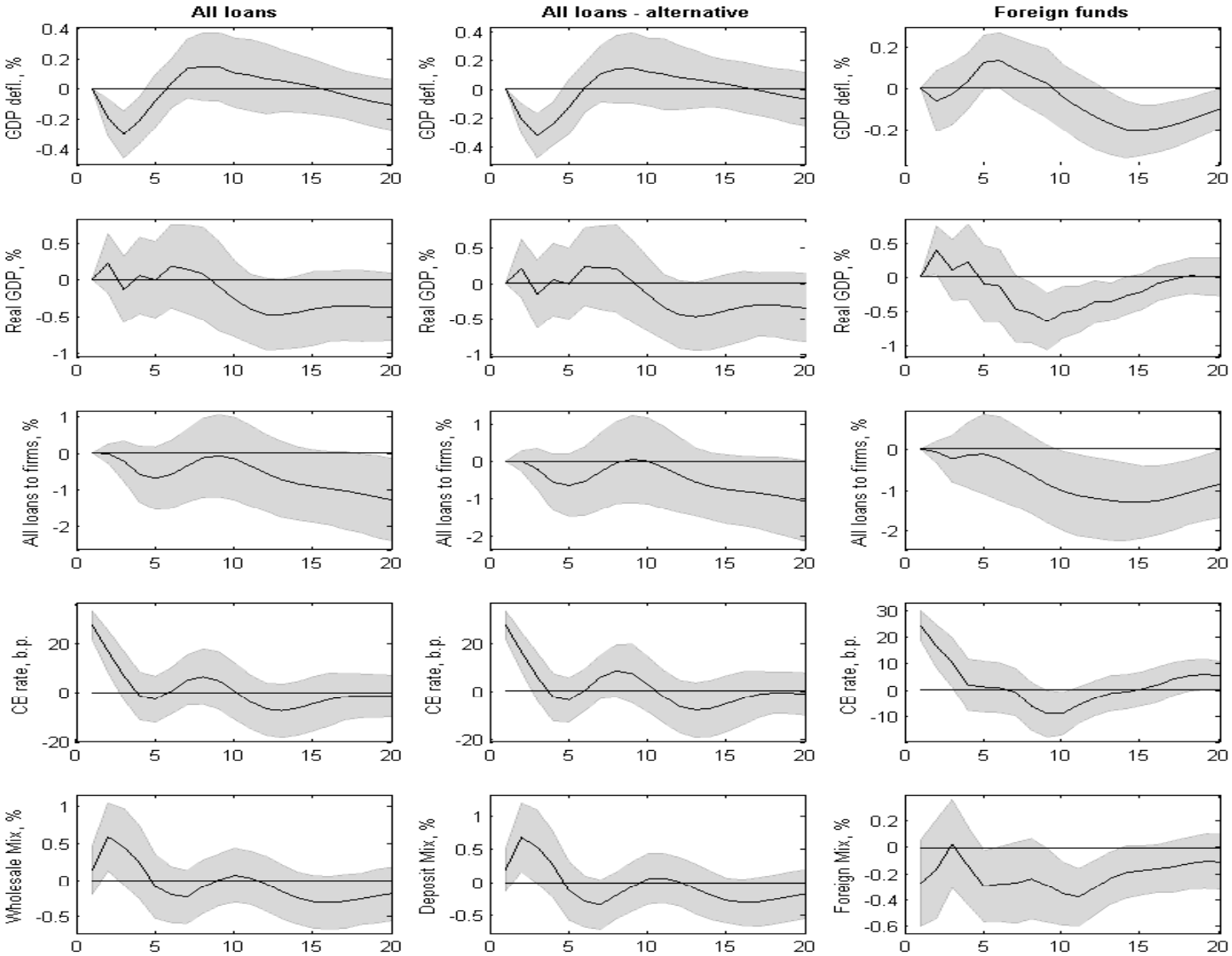
Bank lending channel - ‘supply’ shock II



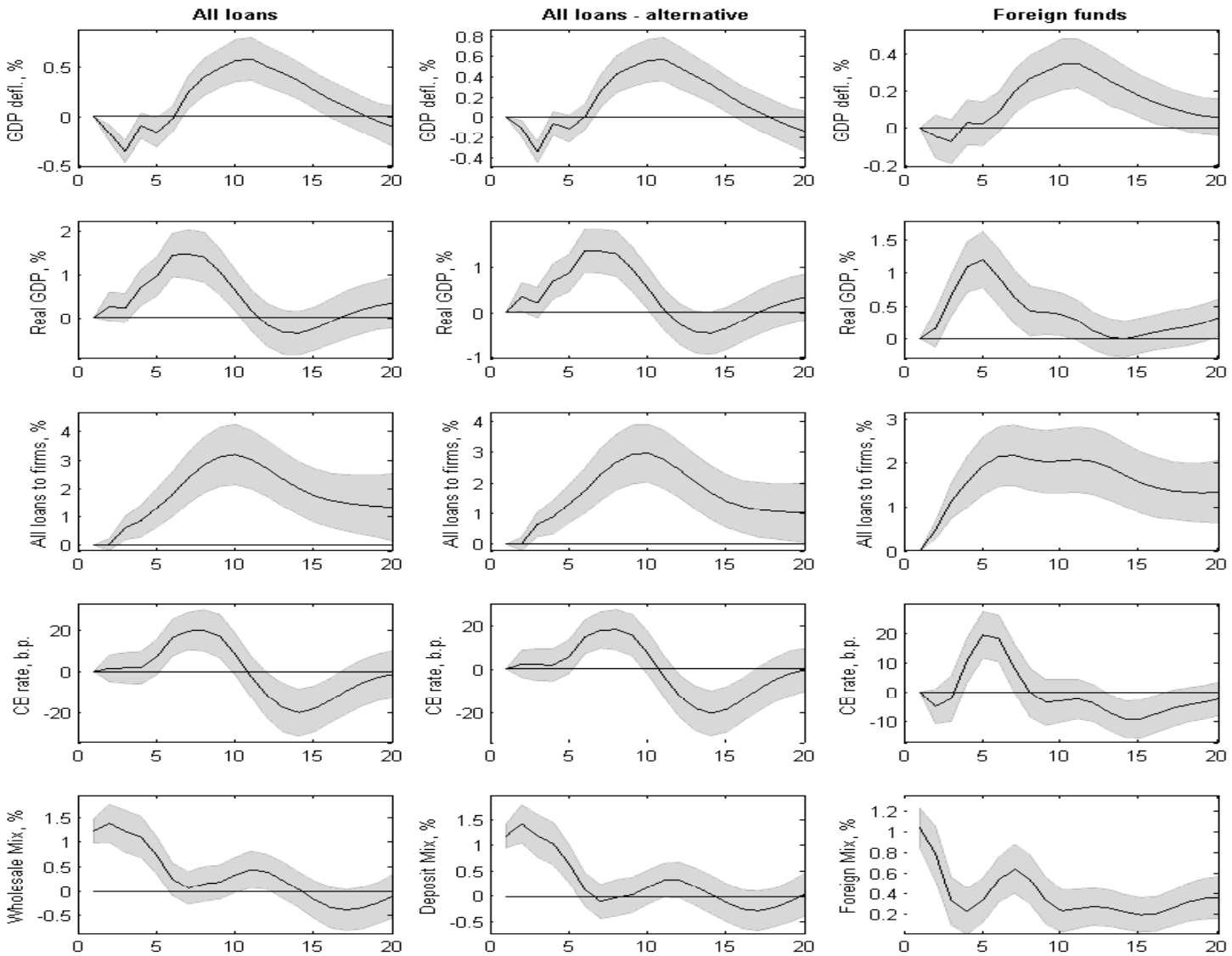
Idea

- Apply the reasoning of Kashyap, Stein, Wilcox (1993) to banks
- Banks have many funding alternatives $\Rightarrow$ substitutability more plausible
- Defining the Mix for banks
  - All loans vs. all loans, securities, deposits (wholesale Mix)
  - All loans vs. all loans and deposits (deposit Mix)
  - All foreign loans and securities vs. all loans, securities, deposits (foreign Mix)

Bank funding channel - monetary policy



Bank funding channel - ‘supply’ shock



Interpretation

- Existence of bank funding channel
  - For loans - not really (but bear in mind that this may only reflect the *relative* strength of the bank lending channel)
  - For foreign funds - maybe, but insignificant
  - It seems that when the central bank tightens monetary policy, domestic banks resort to wholesale funding
- Strength and direction of the bank funding channel
  - Results indicate that the channel is strong, signs are as expected
  - About 1 p. p. increase in the Mix results in about 3% increase in bank loans to firms and about 1.2% increase in GDP
  - Remarkably robust (ordering, specification...)

Conclusions

- Responses to a monetary policy shock standard
- Evidence on bank lending channel mixed
- Bank funding channel remarkably strong and robust
- Policy implications: relative easing of one of the sources of bank wholesale funds supply is a warning sign for potentially large fluctuations ahead
- But careful - bear in mind all the assumptions (identification)

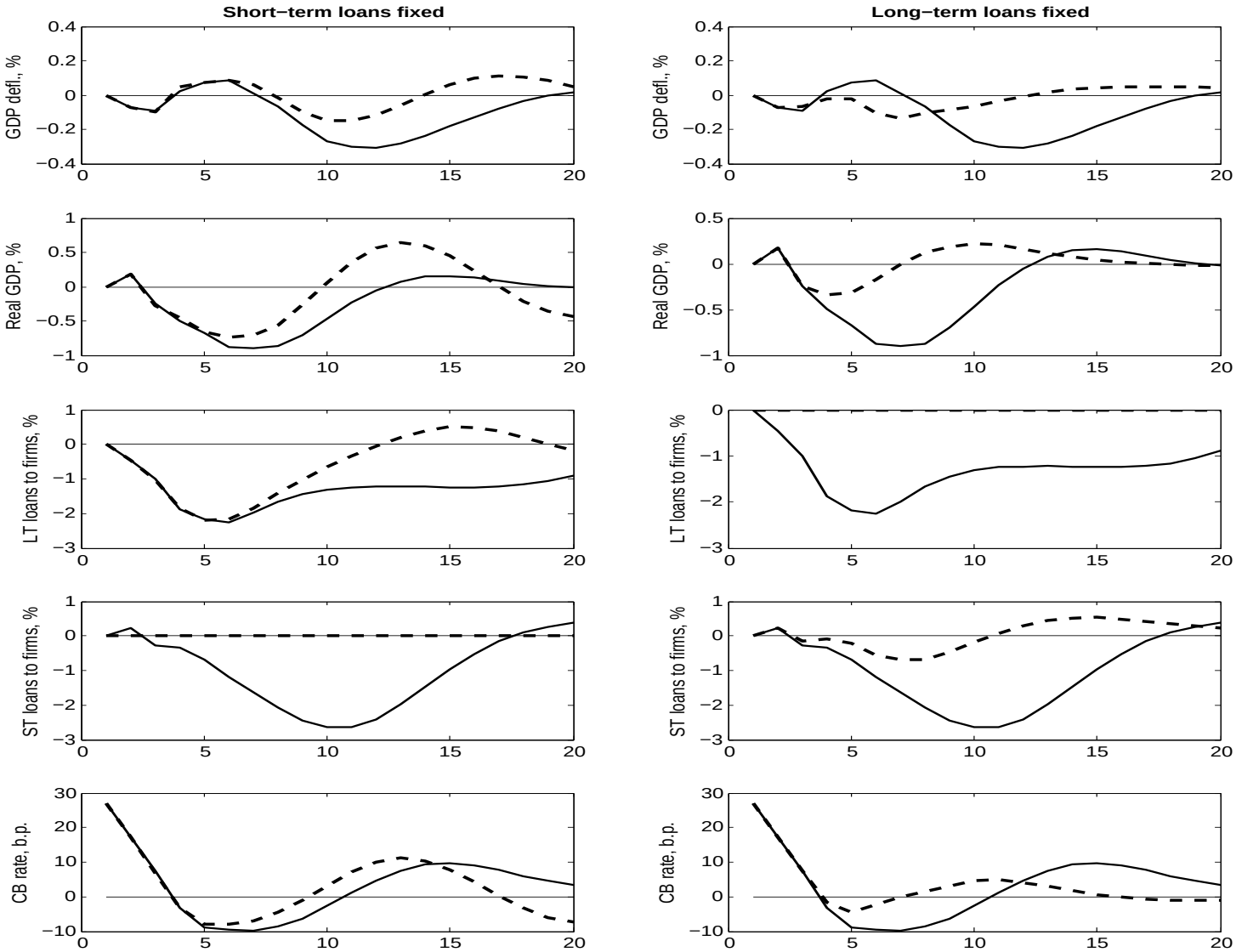
Conclusions

Thank you for your attention

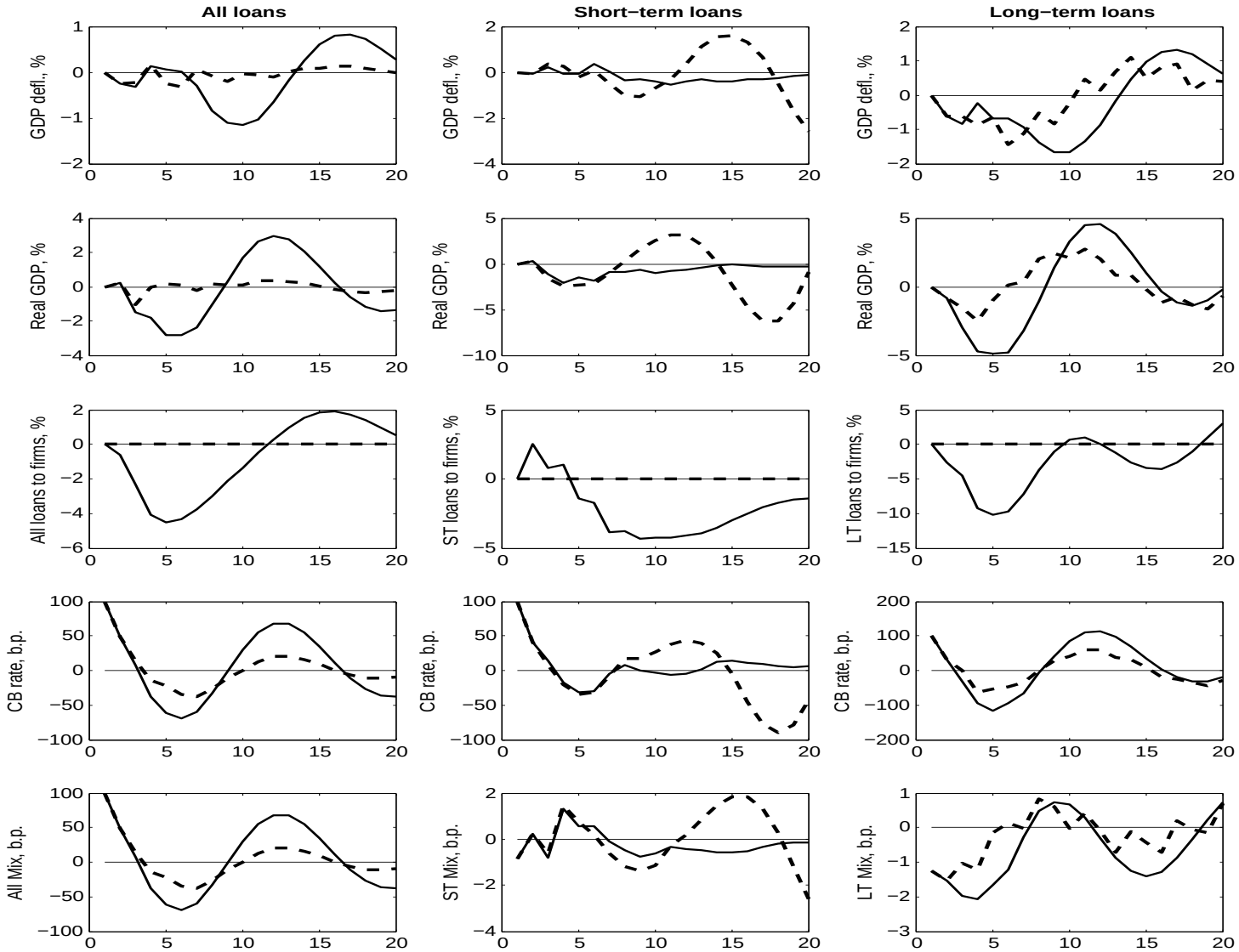
Effect of lending on real activity

- Question: Does lending matter for real activity or vice-versa?
- Test: Counterfactual experiment:
  - Estimate a standard monetary VAR
  - Hold the response of loans constant
  - Observe what impact does this have on output

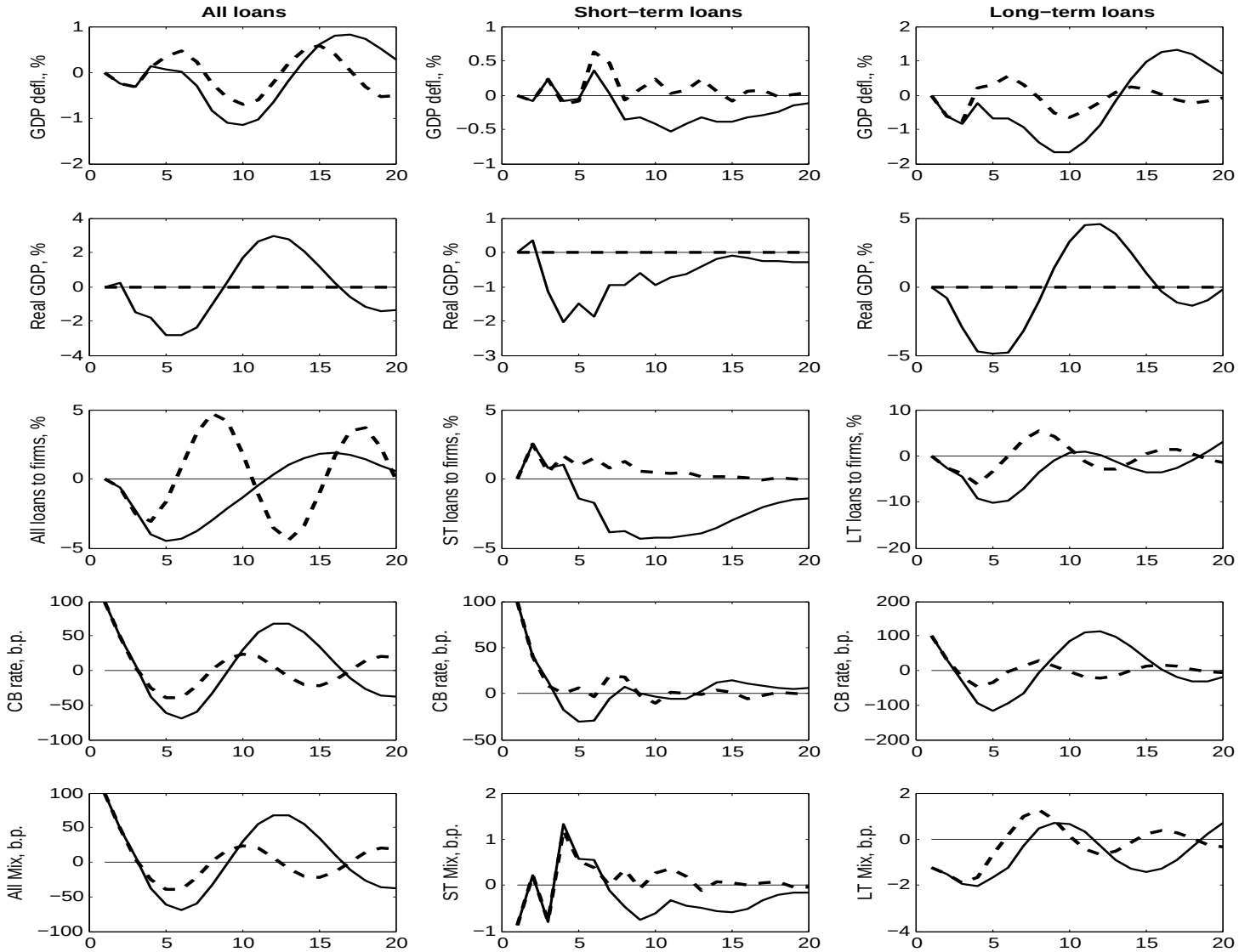
Counterfactual in a monetary VAR



Counterfactual in a VAR with the Mix: Loans constant



Counterfactual in a VAR with the Mix: Output constant



Monetary policy shock with EA variables