The effects of monetary policy on banks and non-banks in times of stress

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Introduction

- Monetary policy effects on banks are well-studied (e.g. Kashyap and Stein, 2000; Kashyap et al., 2002; Altunbas et al., 2009), but the effects on non-banks remain underexplored.
- We draw on aggregate balance sheet data, such as total assets, debt securities and lending activities to study the effects of monetary policy on different segments of the financial sectors.

  ▸ Total assets ▸ Debt securities ▸ Loans
- We contribute to the literature by presenting joint responses of banks and non-banks to monetary policy shocks, highlighting the role of *financial stress* in the policy transmission.

Related literature

- Monetary policy tightening reduces bank lending while generally fostering an expansion in non-bank lending (Peydró et al., 2019; Cucic and Gorea, 2024).
- Tighter monetary policy diminishes investment funds' assets and investor flows (Giuzio et al., 2021; Tillmann and Tiza Mimun, 2023; Holm-Hadulla et al., 2023).
- Monetary policy easing triggers outflows from money market funds (Bua et al., 2019).
- Accommodative monetary policy supports the expansion of the insurance sector (Kubitza et al., 2022; Kaufmann et al., 2024) and is associated with growth in the pension fund sector (Boubaker et al., 2018; Lu et al., 2019).

Data

- As proxy for the NBFI sector, we include investment funds (IF), money market funds (MMF), insurance companies (IC), and pension funds (PF).
- For our analysis, we collect aggregated balance sheet data for total assets, debt securities, and total loans of banks and NBFIs on a quarterly basis.
- For our sector-specific analysis, we further collect all aggregated balance sheet data available, to capture further bank-nonbank links. [1]
- Our sample covers the time horizon from January 2009 until October 2022.

[1] Detailed estimations can be found in our WP.

Econometric approach

- We follow Jordà (2005) using local projections with high-frequency identified monetary policy shocks.

  Technically, the equation takes the following form:

$$y_{t+h} = \alpha_h + \beta_h shock_t + \gamma_h X_t + u_t, \tag{1}$$

  where y_{t+h} includes our variables of interest, $\beta_h shock_t$ is the monetary policy shock, and X_t includes our control variables.

Econometric approach (2)

- We follow Tenreyro and Thwaites (2016) and apply state-dependent local projections.

  Formally, the state-dependent analysis takes the following form:

$$y_{t+h} = F(z_t)(\beta_s^h \epsilon_t + \gamma_s' x_t) + (1 - F(z_t))(\beta_c^h \epsilon_t + \gamma_c' x_t) + u_t, \quad (2)$$

  where y_t is our variable of interest, $F(z_t)$ captures stress (s) and calm (c) regimes from the CISS index, x_t denotes controls, and ϵ_t the policy shock. The coefficients β_j^h measure the shock's effects depending on the financial state.

Econometric approach (3)

- $F(z_t)$ is a smooth increasing function of an indicator of the state of the economy z_t. Following Granger and Terasvirta (1993) we employ the following logistic function:

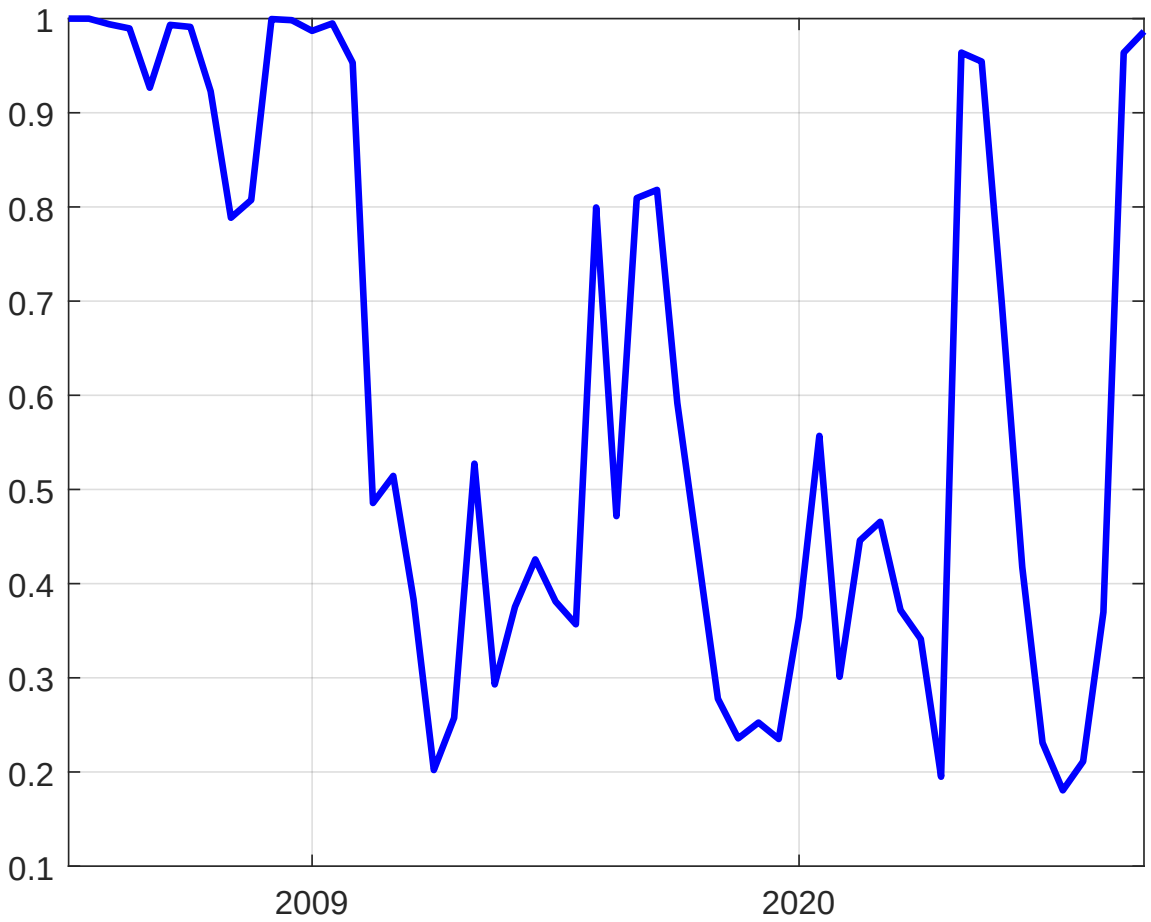
$$F(z_t) = \frac{exp(\theta \frac{z_t - c}{\sigma_z})}{1 + exp(\theta \frac{z_t - c}{\sigma_z})}, \tag{3}$$

where c is a parameter that controls for what proportion of the sample the economy spends in either state and σ_z is the standard deviation of the state variable z. The parameter θ determines how fast the economy switches from one regime to the other when z_t changes.

We assign the value of 3 for θ. The parameter c is set to 0.5, capturing (very) high and (very) low levels of financial stress.

Econometric approach (4)

Figure: Transition function of the CISS index



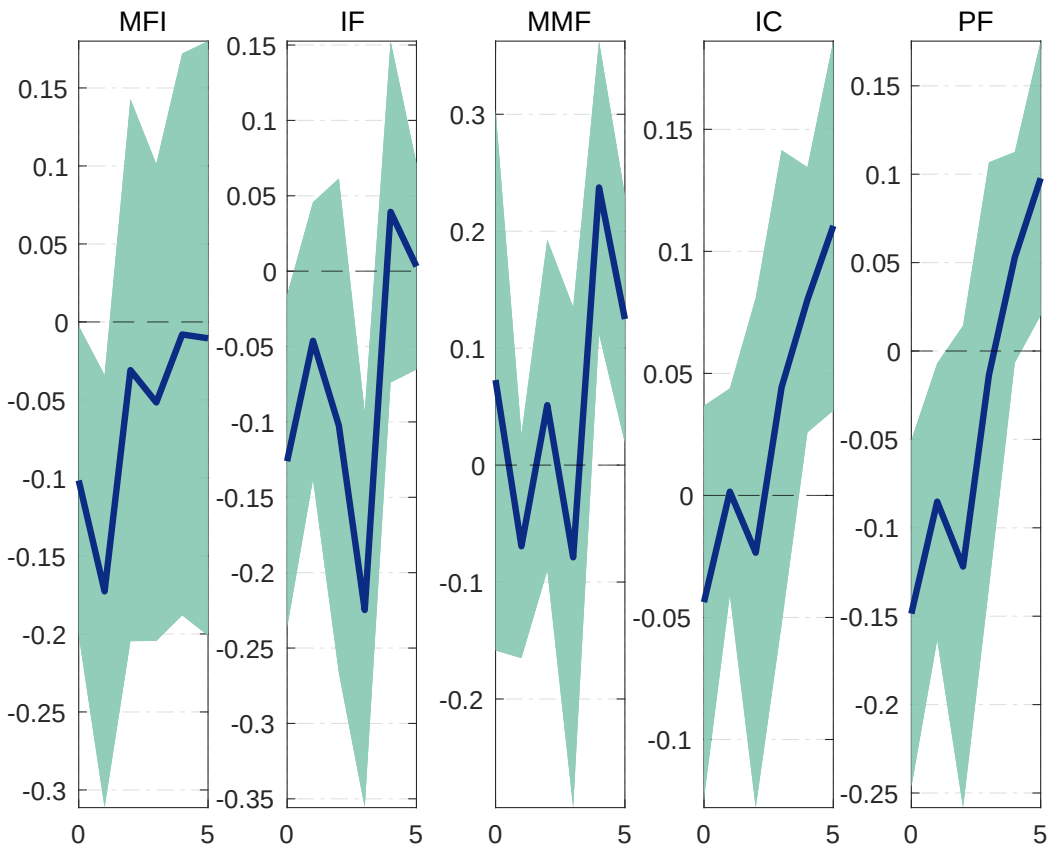
Identification of monetary policy shocks

- We follow the approach introduced by Altavilla et al. (2019).
- We build a surprise time series including the change of the yield of a specific asset around the ECB's press conference.
- Technically, our times series is built in the following way:

$$shock_t = \begin{cases} surp_{t,d} & \text{if GovC meeting in quarter } t \\ 0 & \text{if no GovC meeting in quarter } t \end{cases}$$

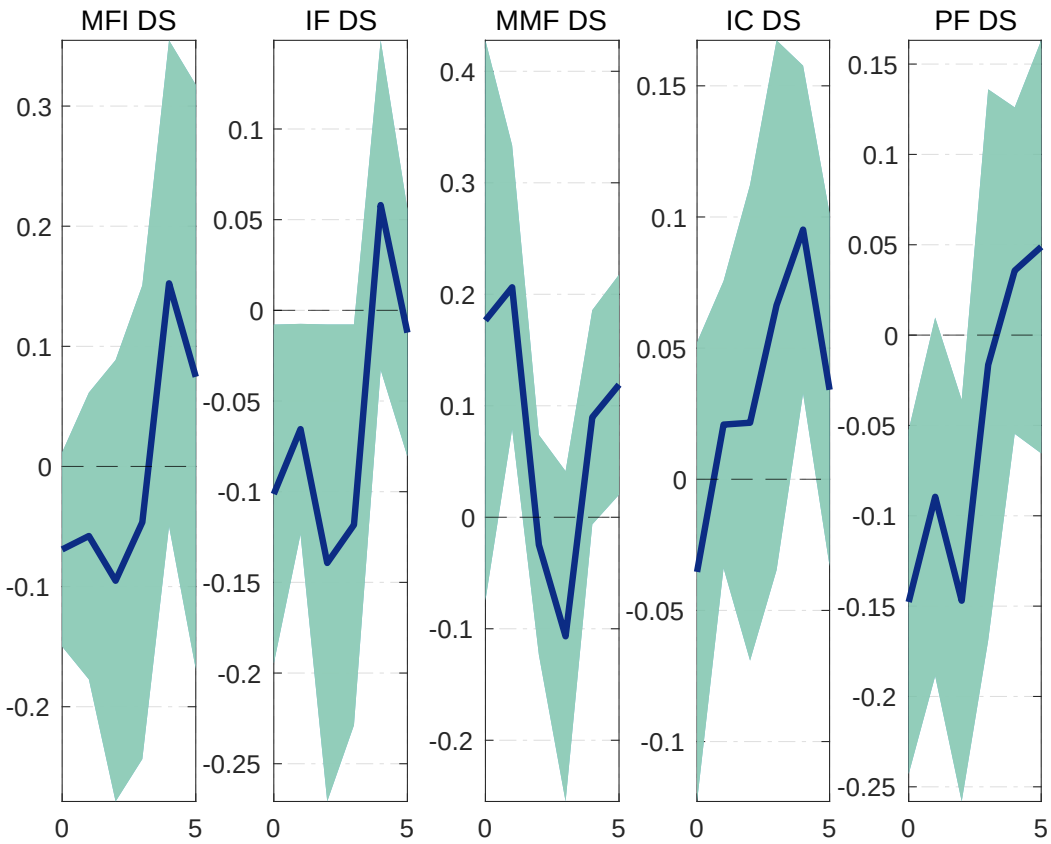
where t and d indicate the quarter and the day of the press conference following meetings of the Governing Council.

Impulse response functions of total assets



Notes: The figure shows the estimated β_h coefficients to a 1pp tightening shock within 68% confidence bands.

Impulse response functions of debt securities



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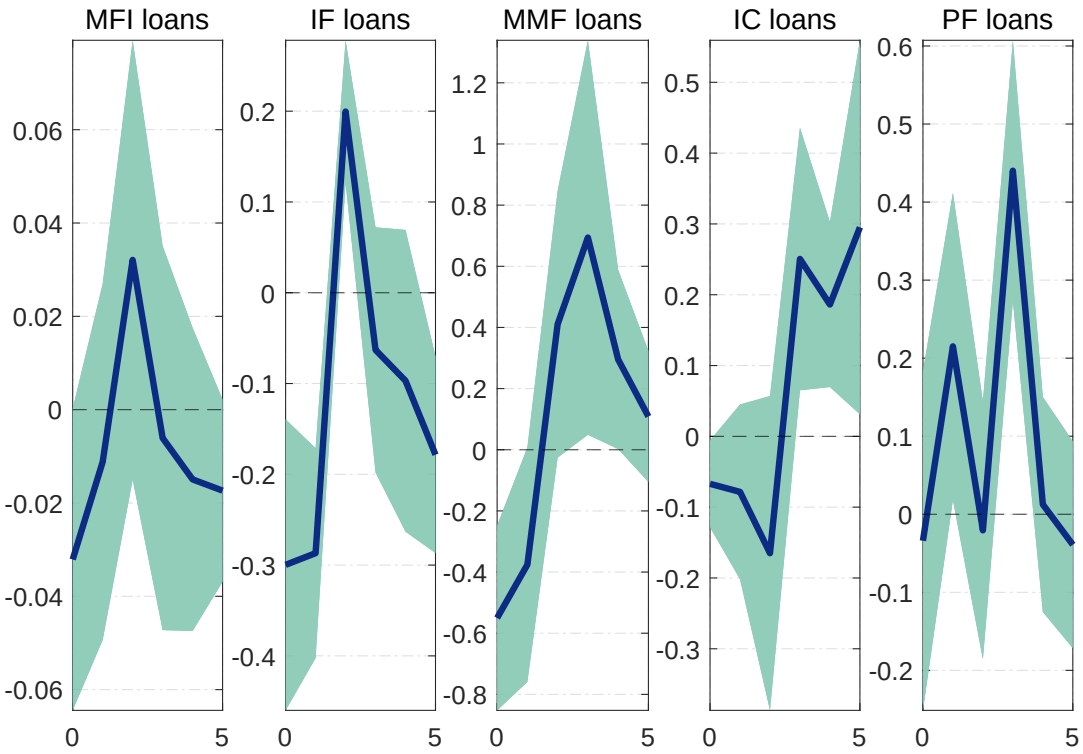
Impulse response functions of loans



Notes: The figure shows the estimated β_h coefficients to a 1pp tightening shock within 68% confidence bands.

Figure: Impulse response functions of total assets

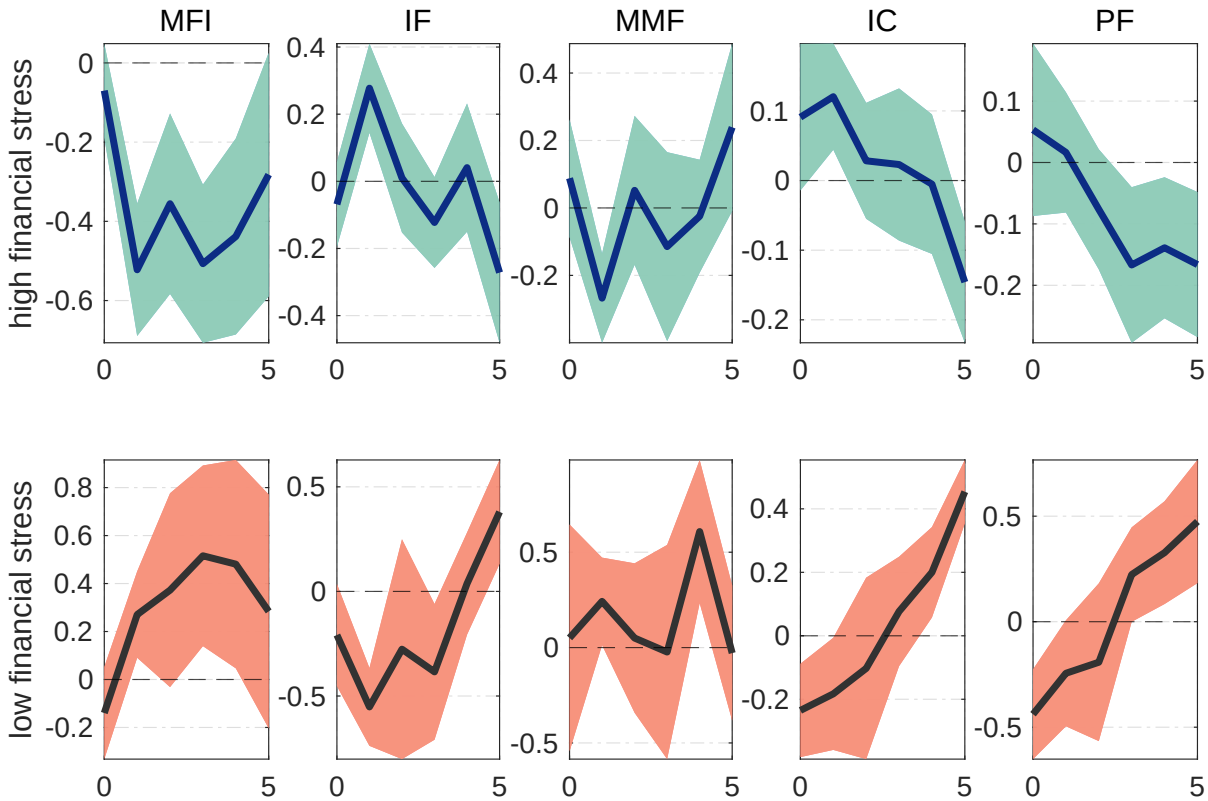


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Figure: Impulse response functions of debt securities

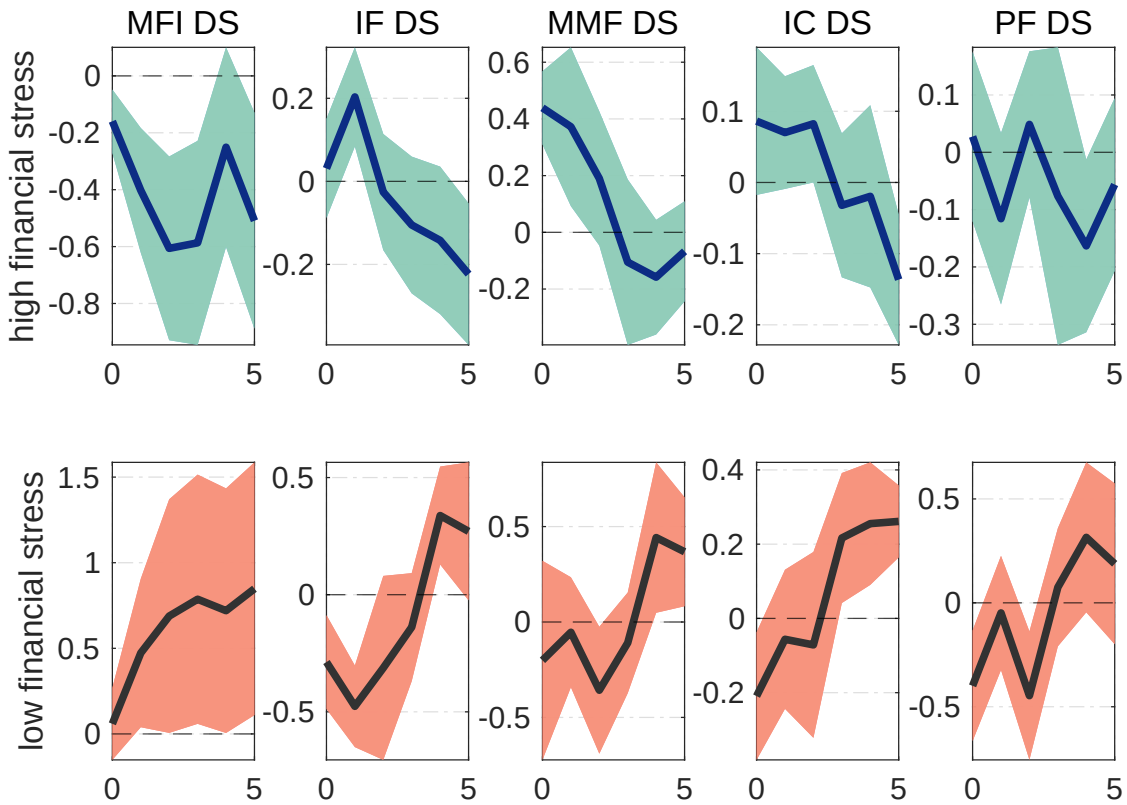

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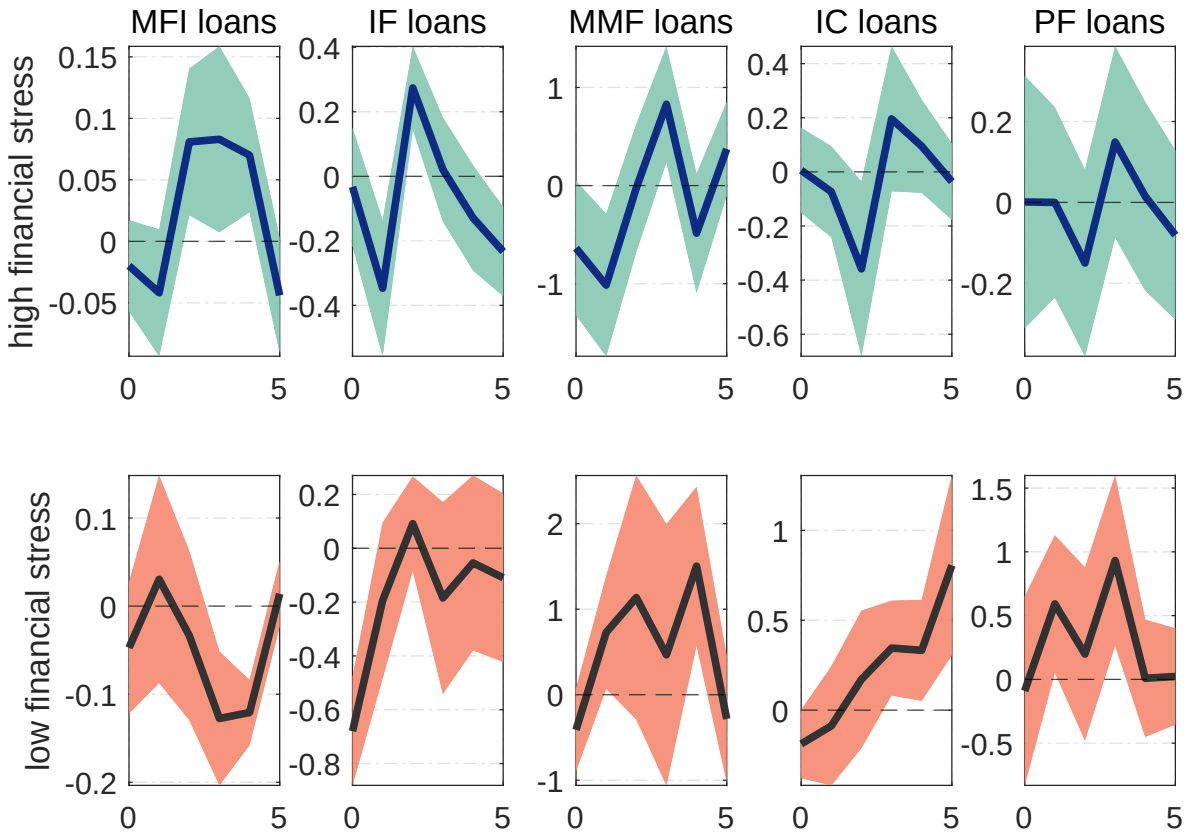
Figure: Impulse response functions of loans



Notes: The figure shows the estimated β_h coefficients to a 1pp tightening shock within 68% confidence bands.

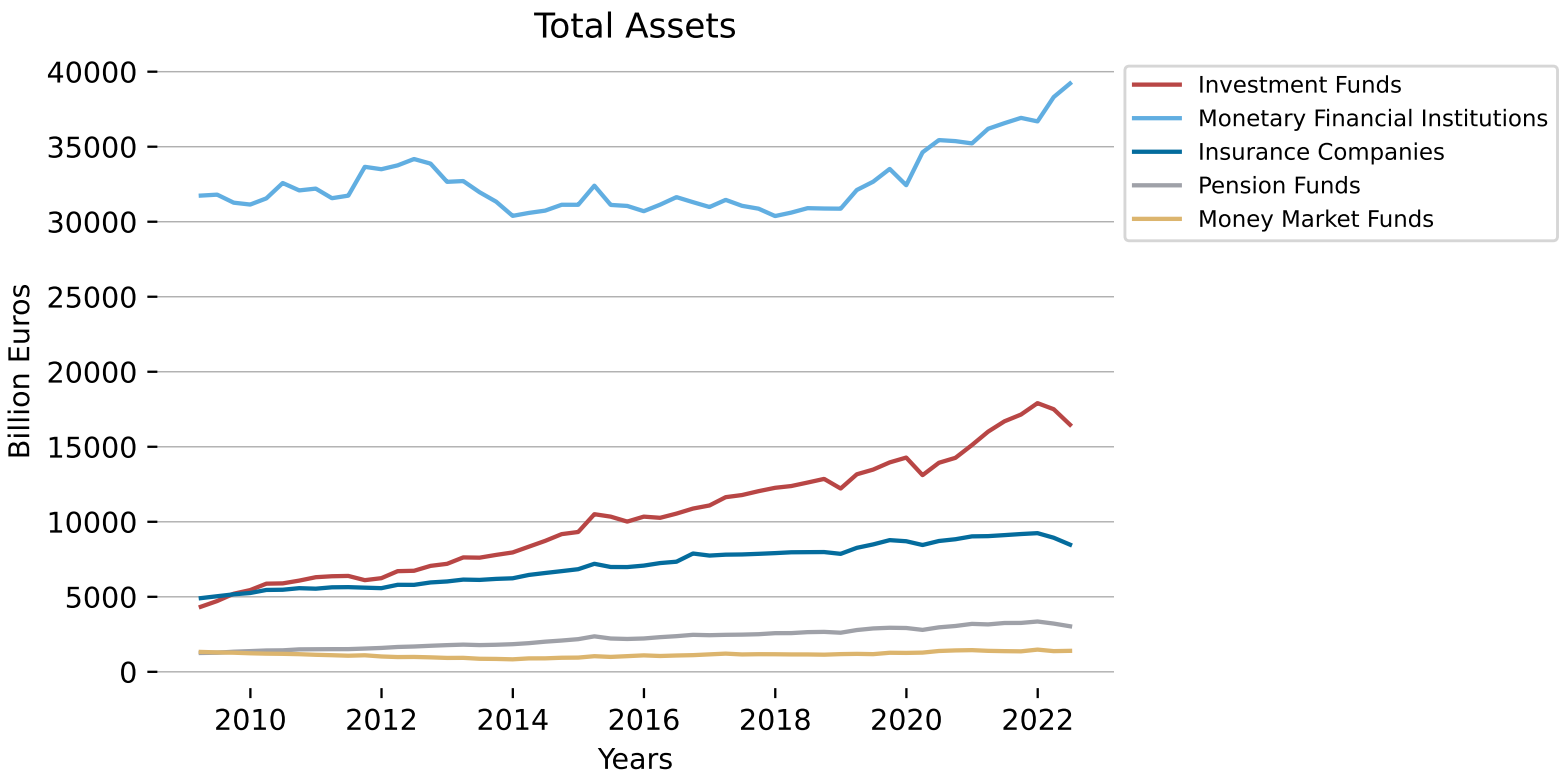
Conclusions

- We estimate the response of banks and non-banks to monetary policy shocks and gain several insights:
  1. We find that high levels of financial stress do influence the response of banks and non-banks to monetary policy shocks.
  2. We also find heterogeneity across the responses. Key observations include an opposite reaction of total assets of banks and investment funds. Also, lending activities of money market funds and investment funds *increase* after a monetary tightening shock.
- Our results show the heterogeneity of banks and non-banks, and show the role of financial stress in the transmission of monetary policy.

Q & A

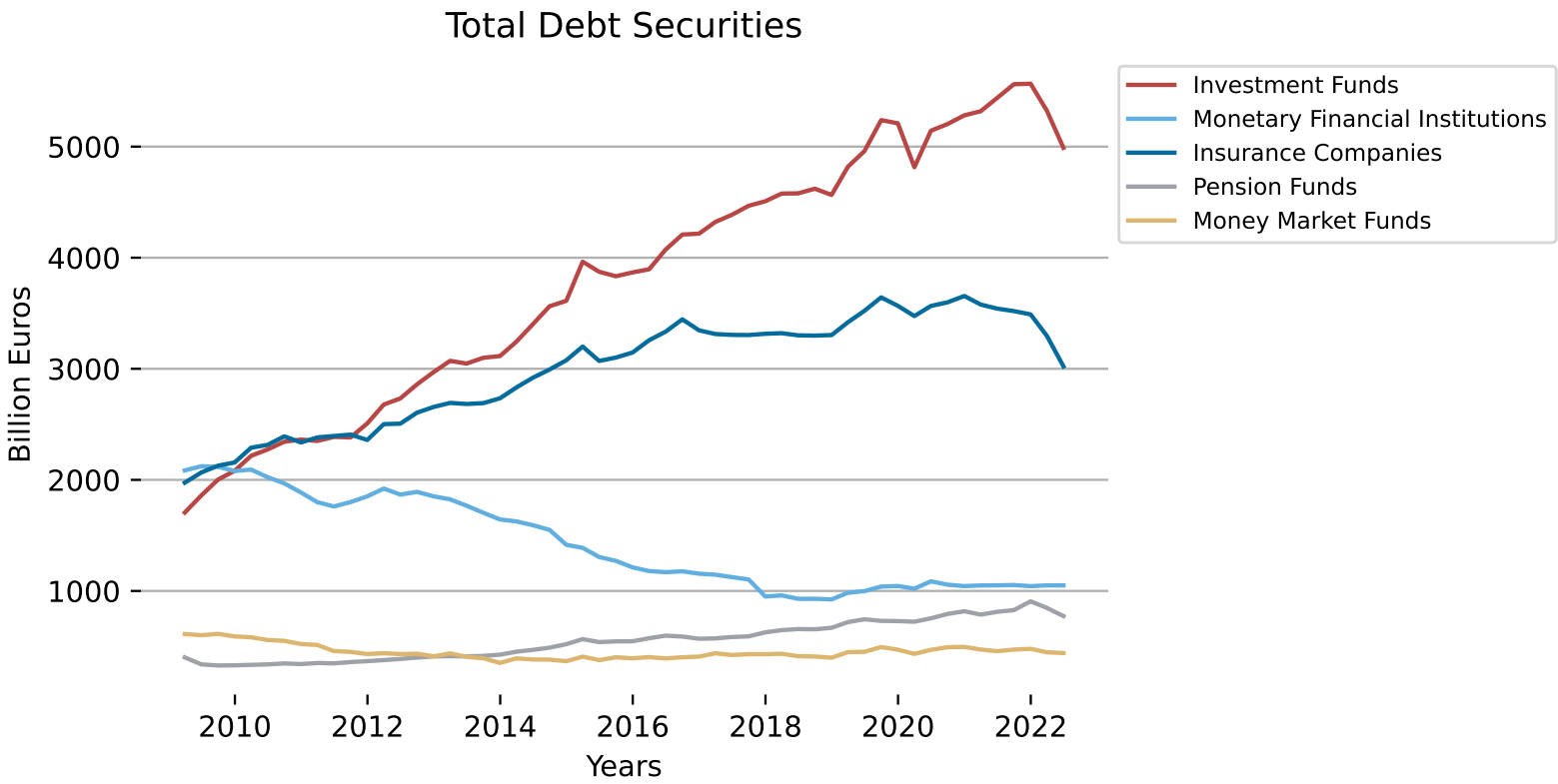
Thank you for your attention.

Total assets of banks and non-banks



Back to Presentation

Debt securities of banks and non-banks



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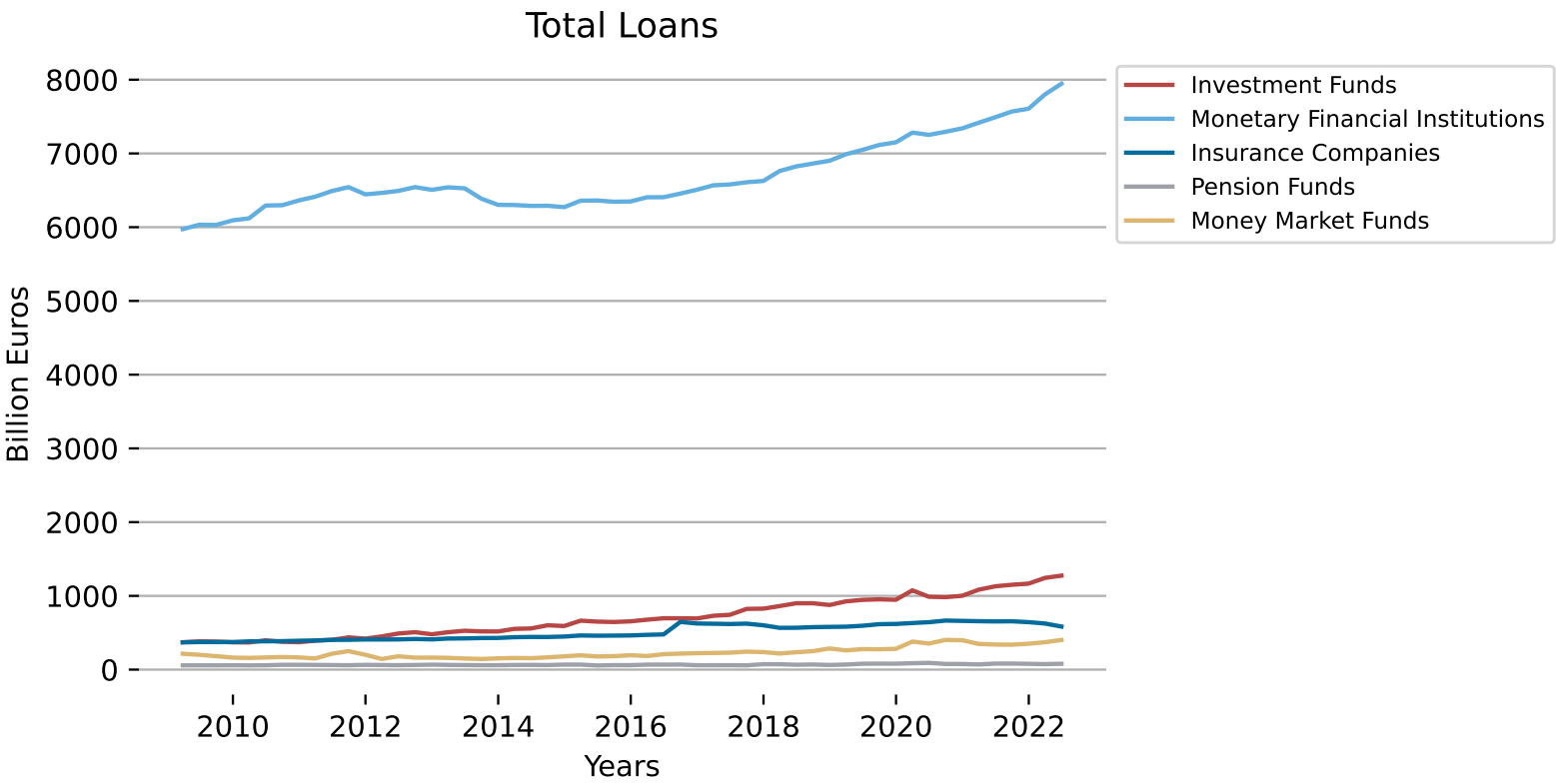
Total loans of banks and non-banks



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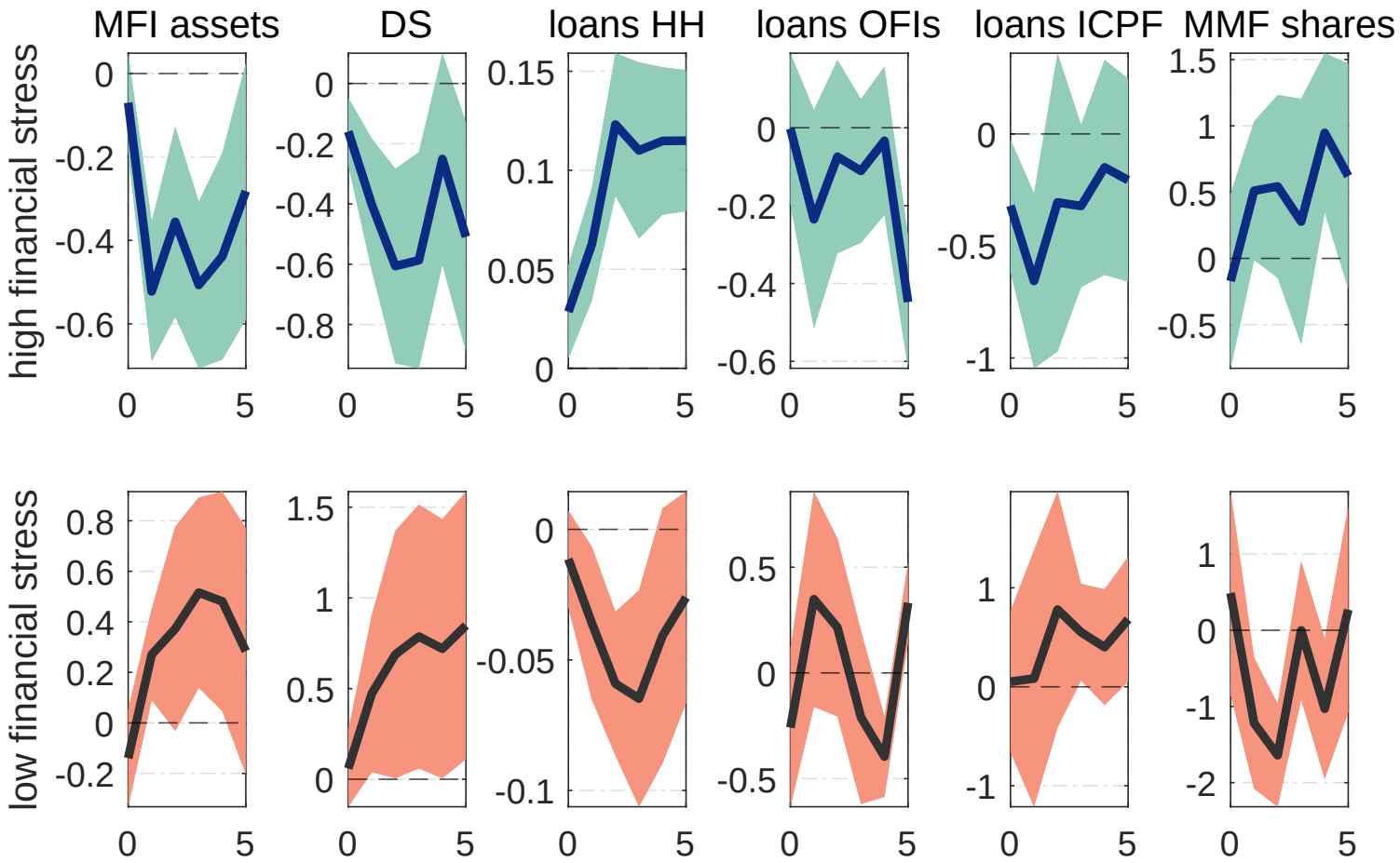
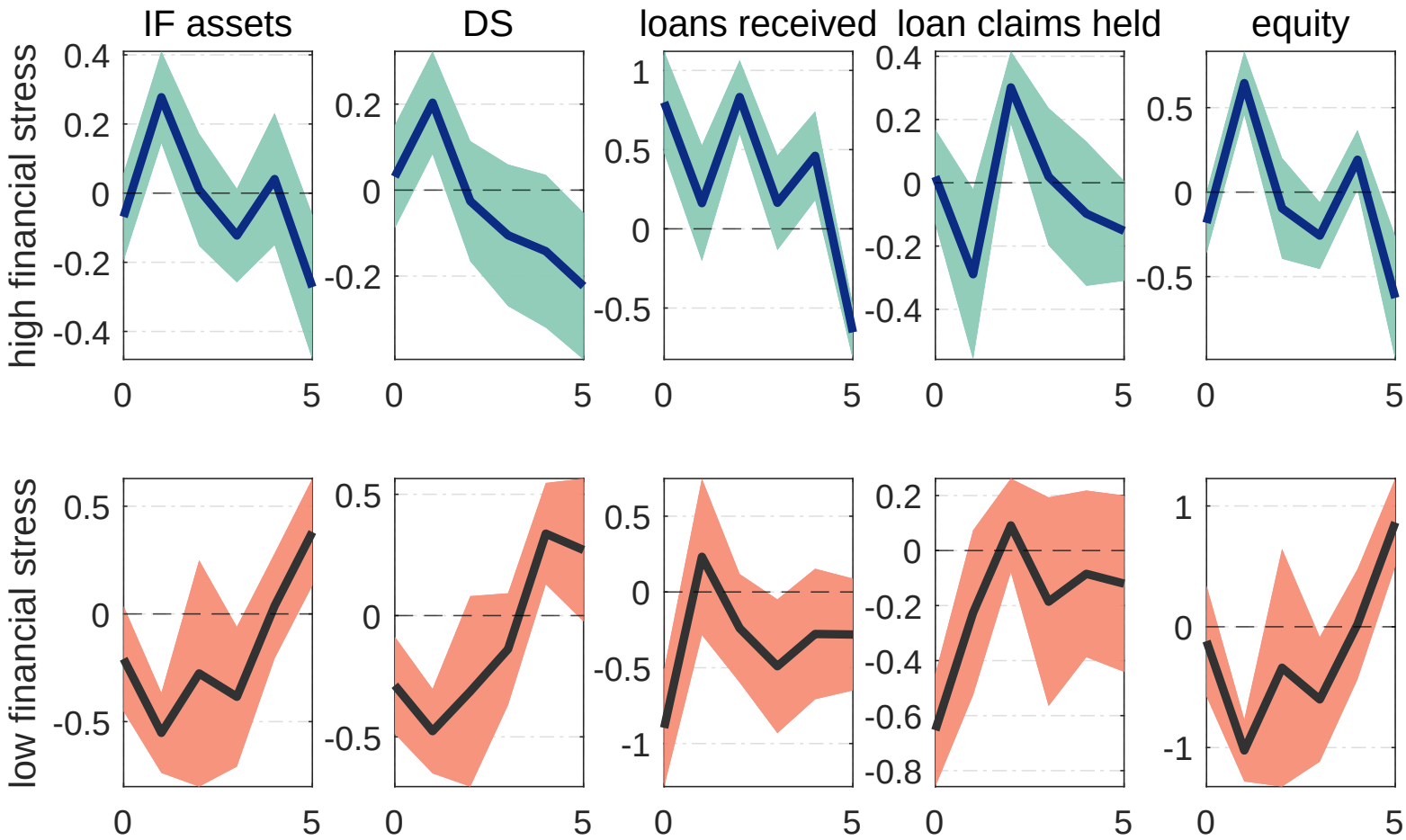
Response functions of Banks



Notes: The figure shows the estimated β_h coefficients to a 1pp tightening shock within 68% confidence bands.

Response functions of Investment Funds



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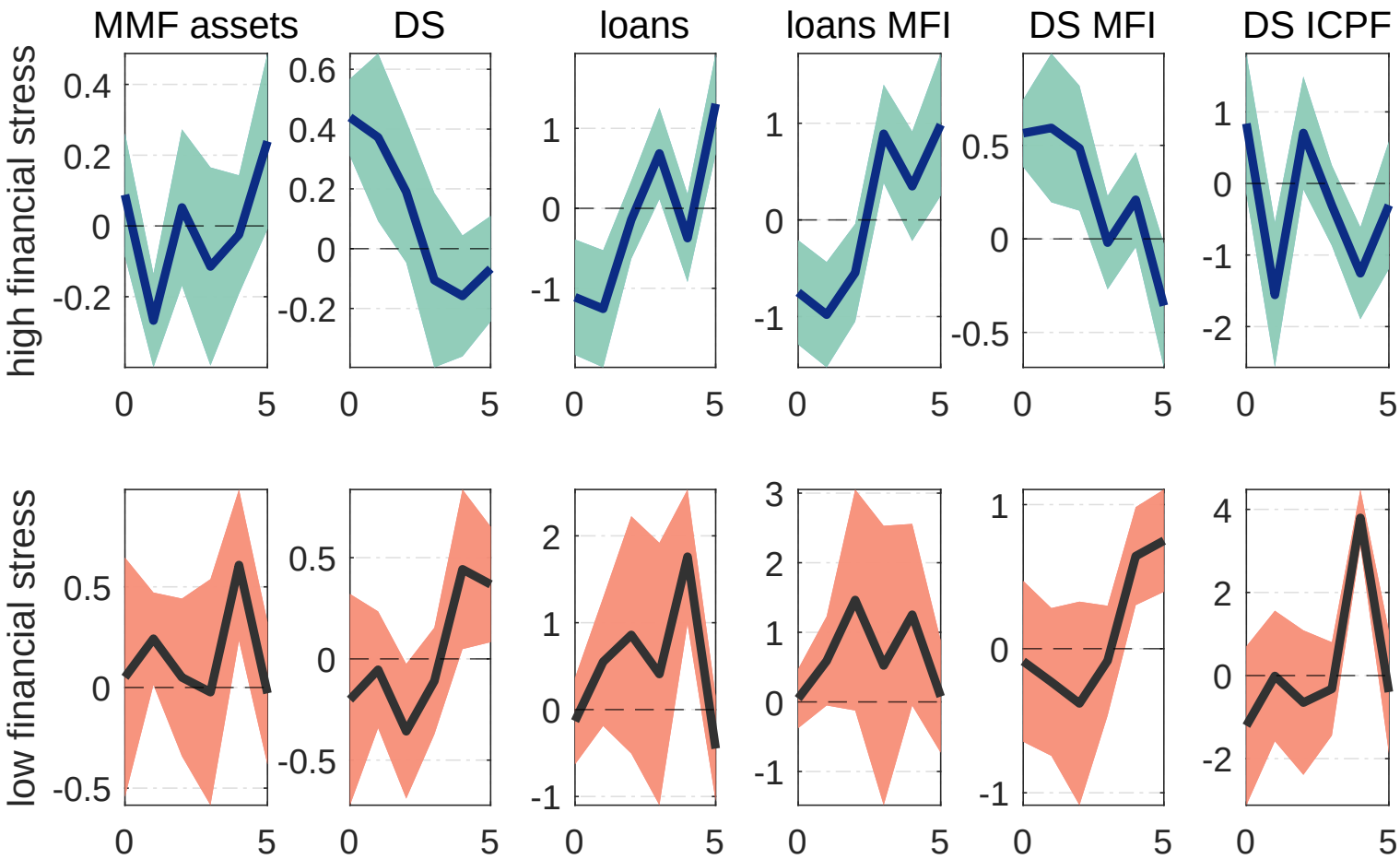
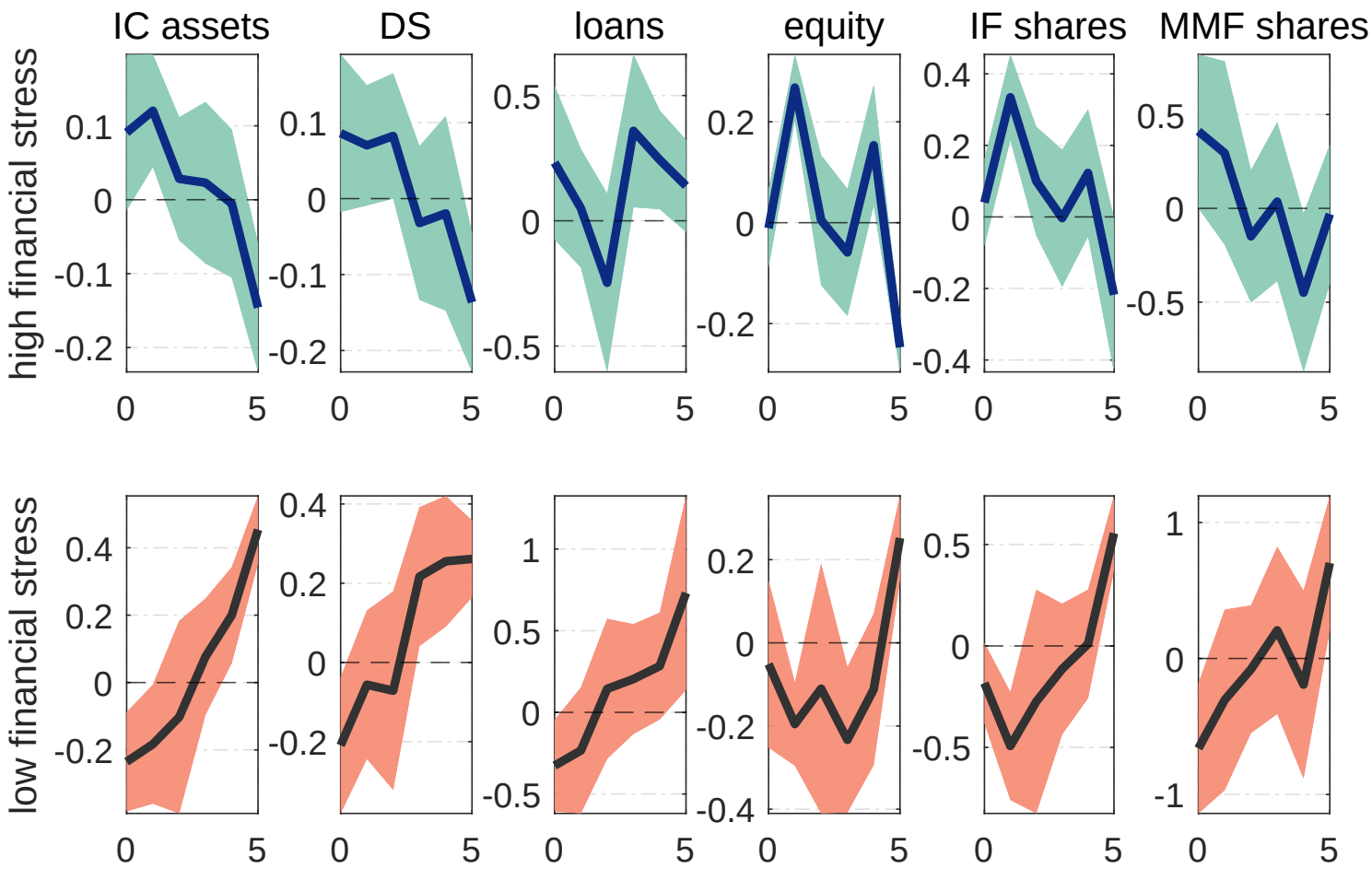
Impulse response functions of Money Market Funds



Notes: The figure shows the estimated β_h coefficients to a 1pp tightening shock within 68% confidence bands.

Impulse response functions of Insurance Companies



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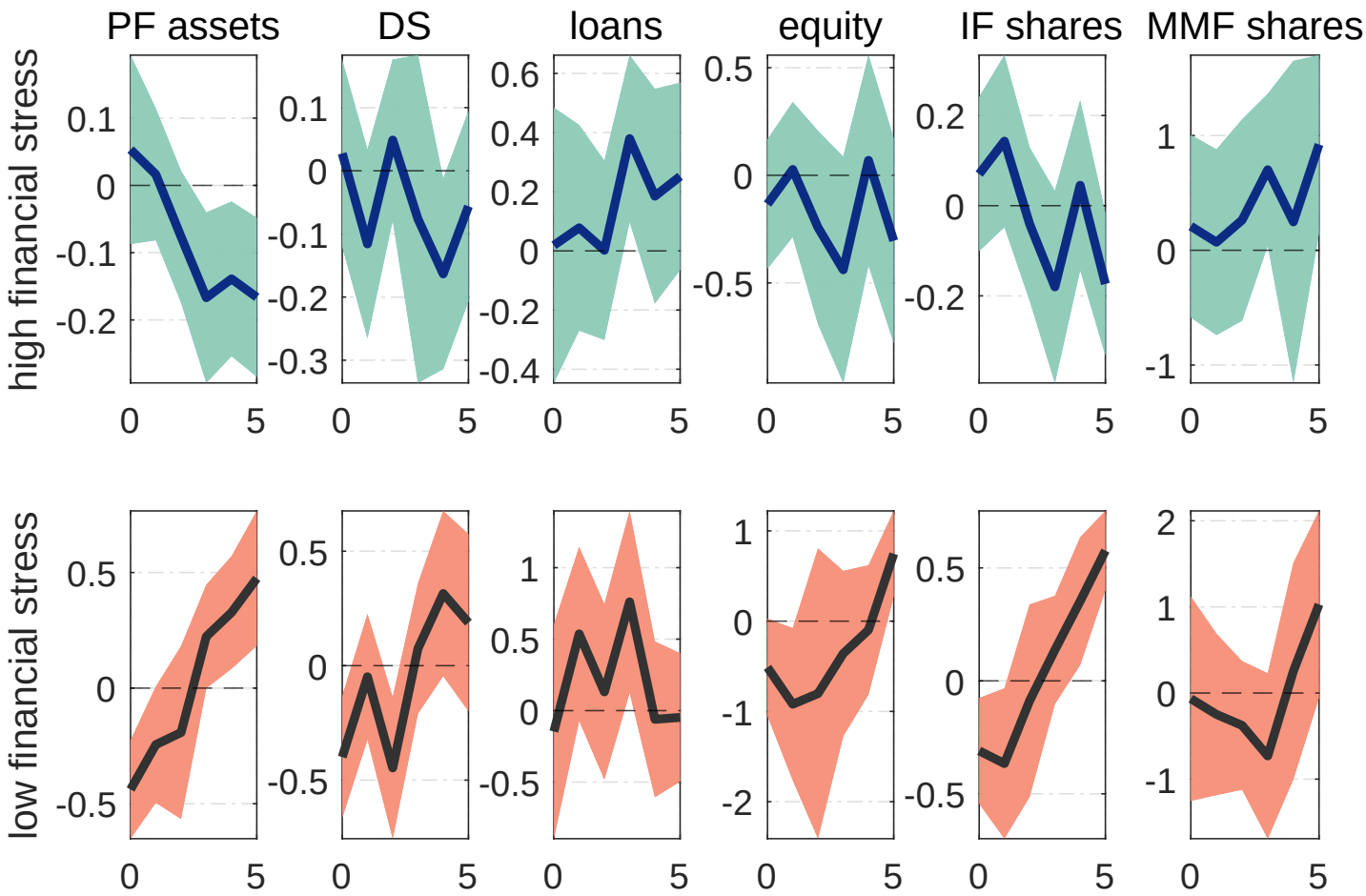
Impulse response functions of Pension Funds



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