HETEROGENEITY IN THE EURO AREA AND THE TRANSMISSION OF MONETARY POLICY

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BANQUE DE FRANCE
EUROSYSTÈME

Two sources of heterogeneity are especially relevant for monetary-policy transmission:

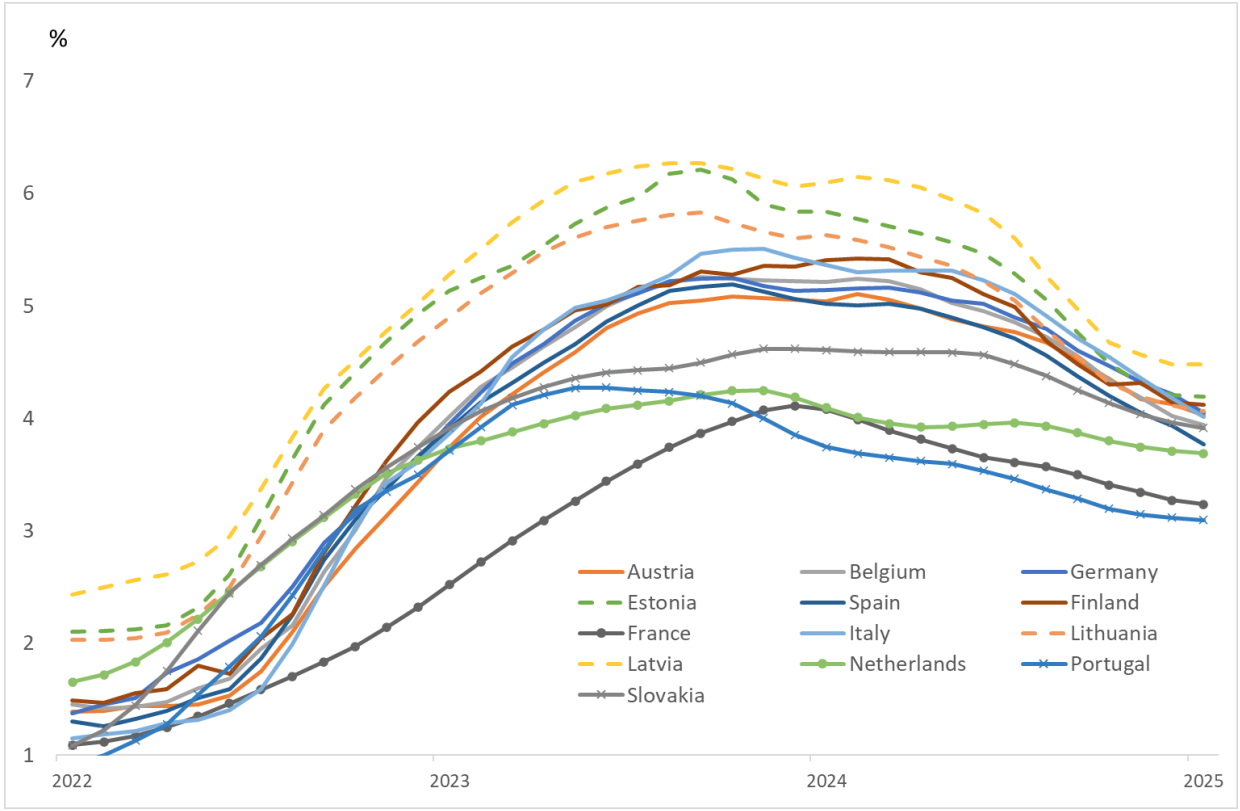
1. Pass-through to lending rates, leverage

2. Nominal rigidities

1. LENDING RATES

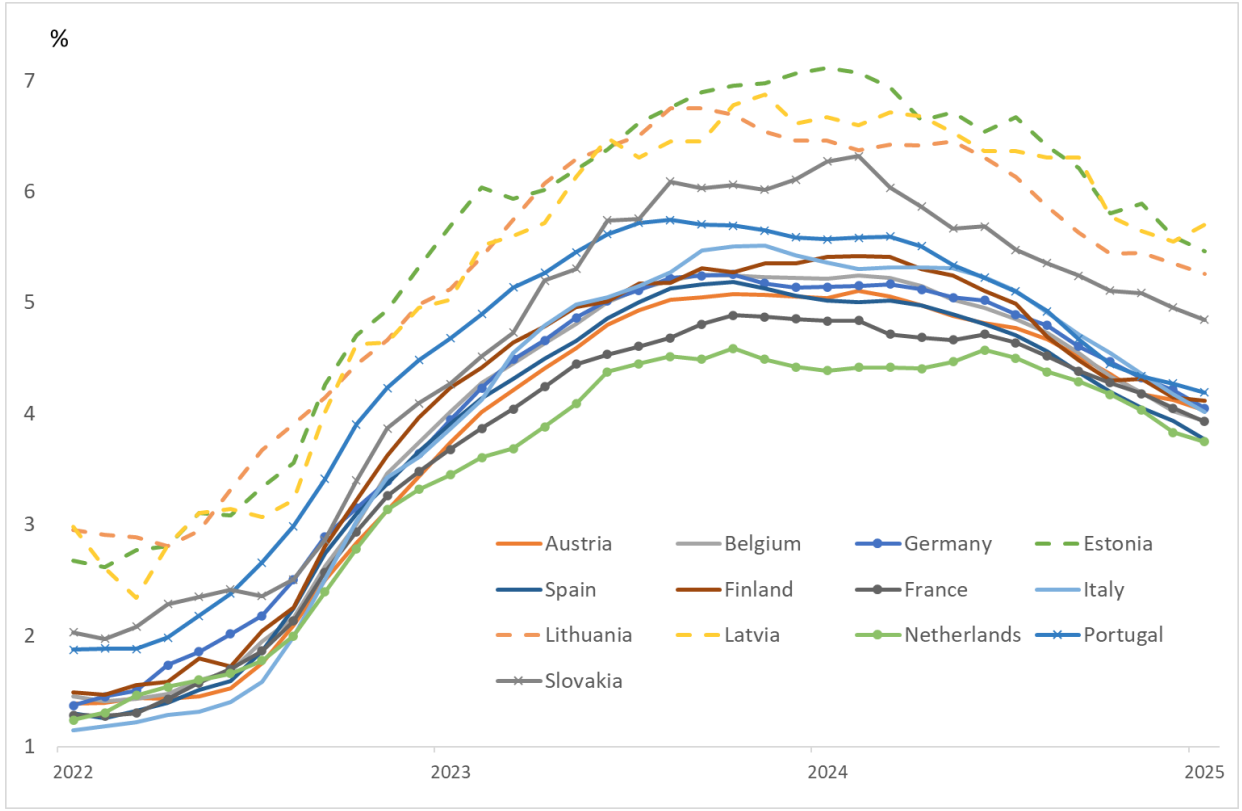
Interest rates on new bank loans mostly moved in parallel over the 2022-24 cycle

Households (housing)



Sources: ECB Statistical Data Warehouse.
Notes: 3-month rolling average. First data point March 2022

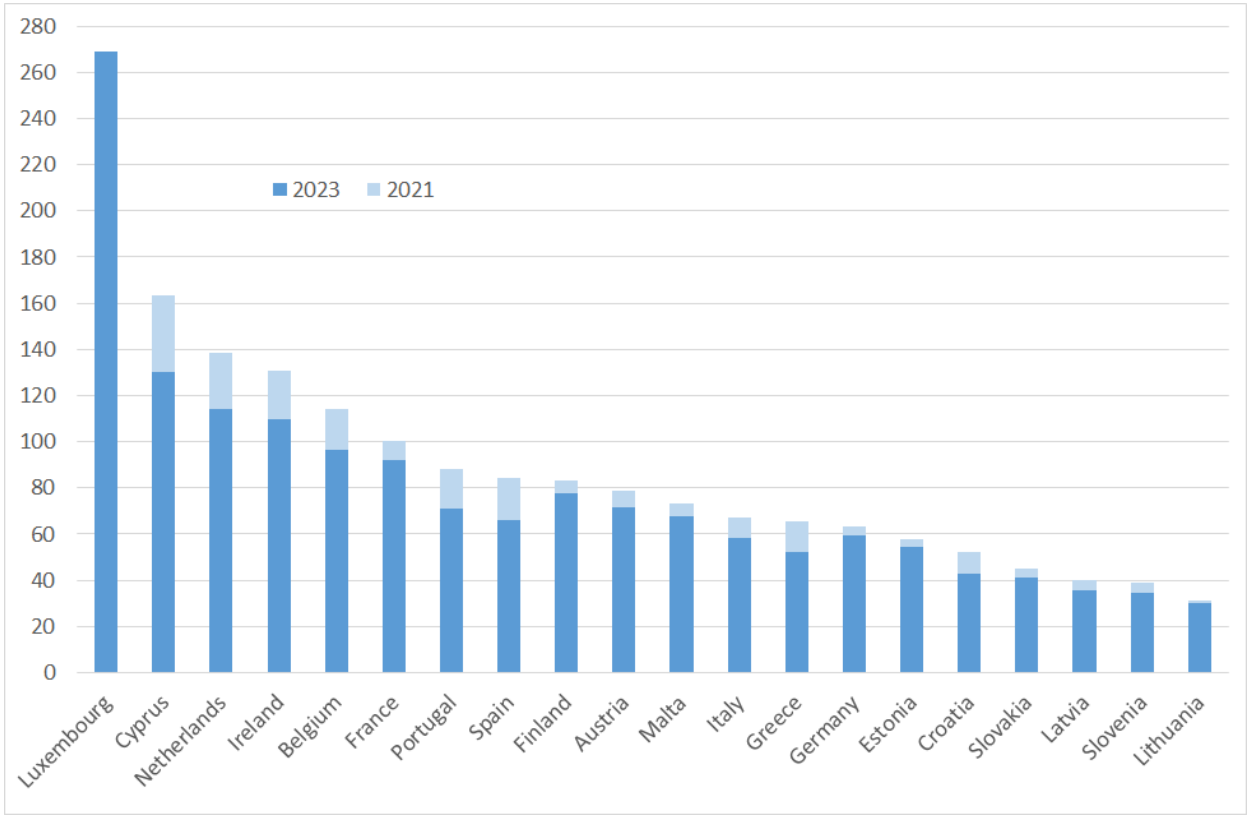
Non-financial corporations



Sources: ECB Statistical Data Warehouse.
Notes: 3-month rolling average. First data point March 2022

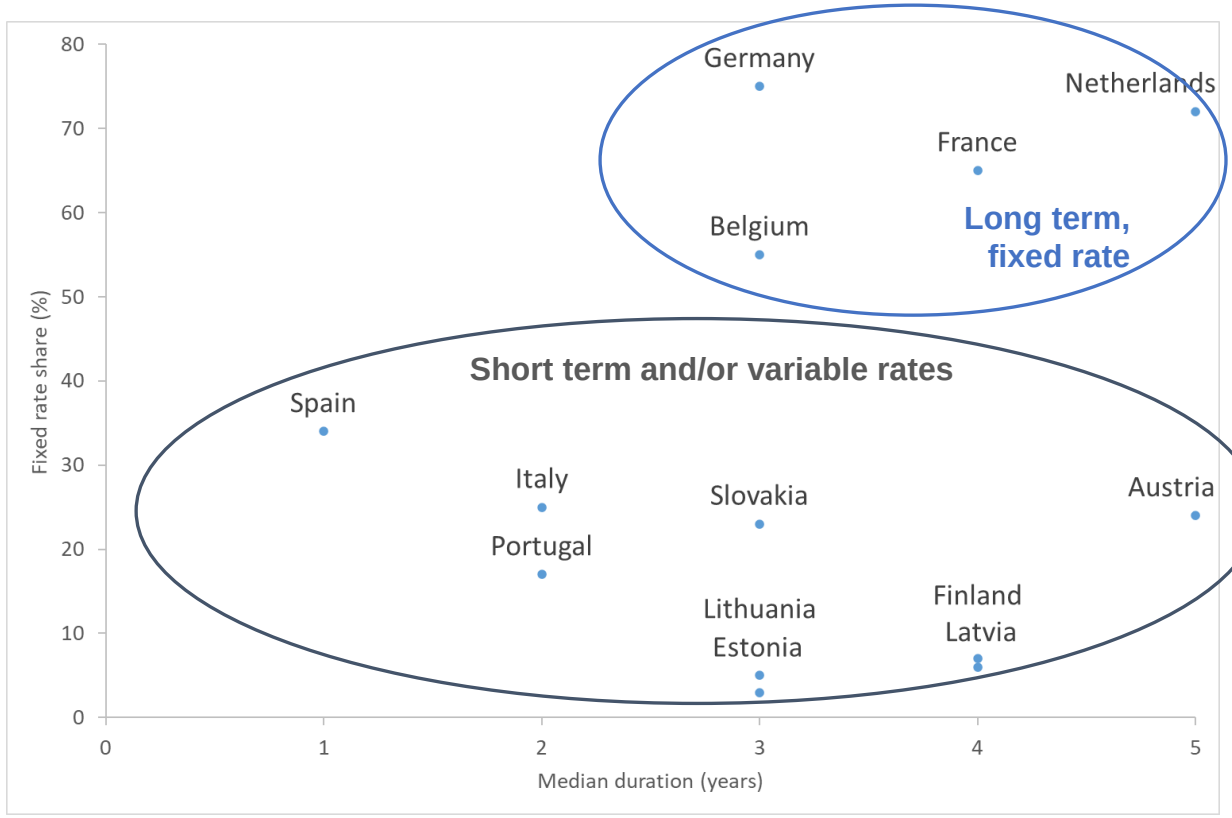
But non-financial firms display heterogenous leverage across member states

NFC debt at end-2021 (% of GDP)



Sources: Eurostat
Notes: NFC debt is consolidated at country level, but not consolidated for loans and debts of domestic NFCs vis-à-vis foreign NFCs (notably that of special purpose entities, especially present in CY, HU, IE, LU, MT and NL).

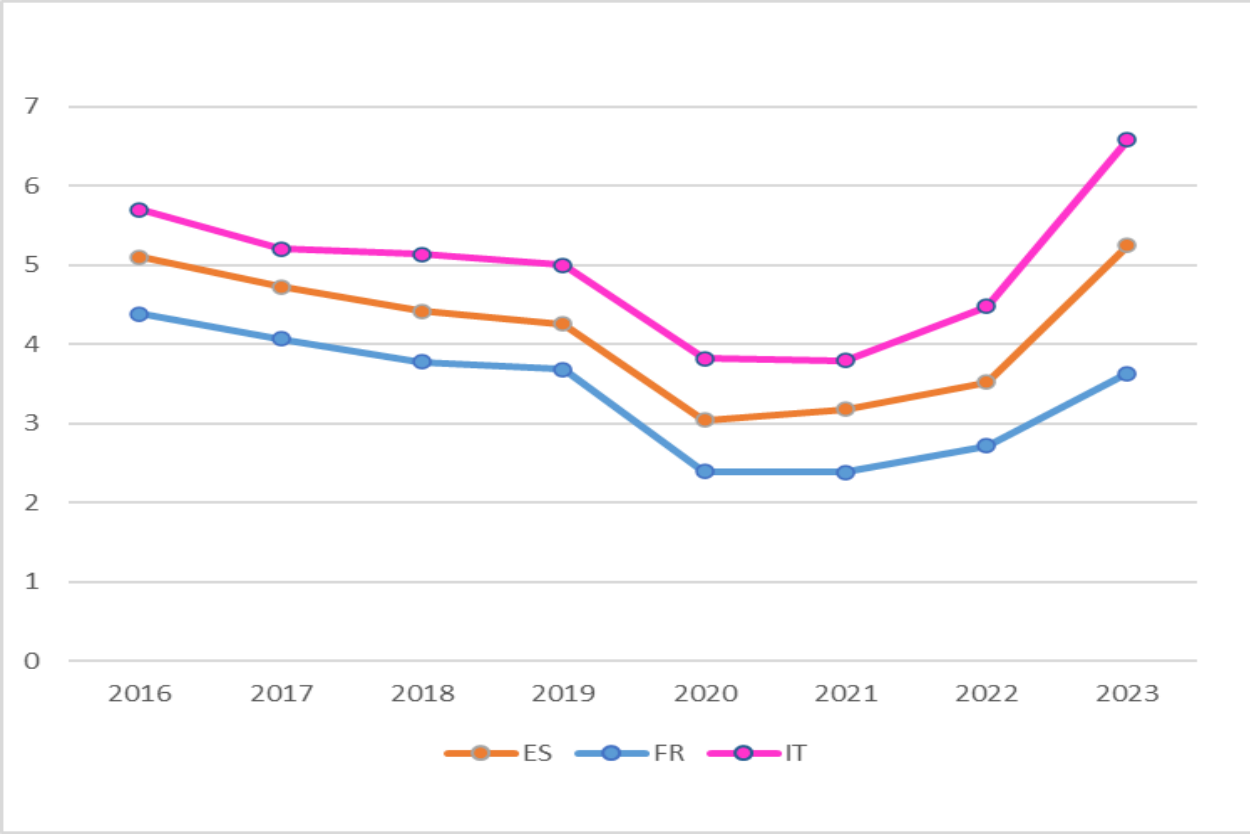
Characteristics of bank loans to NFCs at end-2024



Source:Anacredit
Notes: median loans duration are relatively stable at the end of 2024 and similar to 2021-2023, except for Spain for which for instance the median duration at the end of 2022 was 2 years. Share of fixed rates are on total outstanding

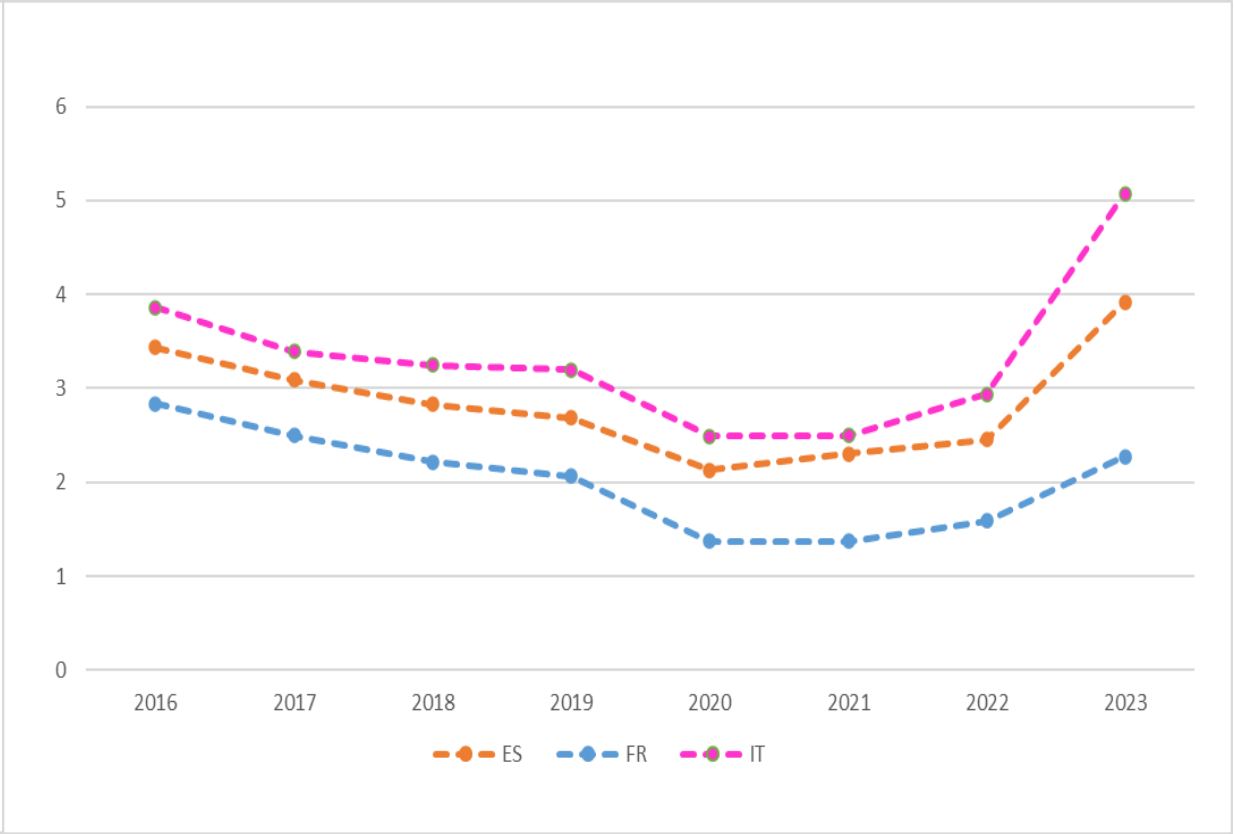
VARIABLE RATES "TRAVEL FASTER": from 2022 to 2023, the avg effective cost of NFCs debt increased by ≈ 250 bp in IT, 150 bp in ES, <100 bp in FR

Average effective cost of NFCs debt, 2016-2023



Sources: Banque de France, IBACH
Notes: Interest rates applicable on gross debt issued by non-financial firms

Median effective cost of NFCs debt, 2016-2023



Sources: Banque de France, IBACH
Notes: Interest rates applicable on gross debt issued by non-financial firms

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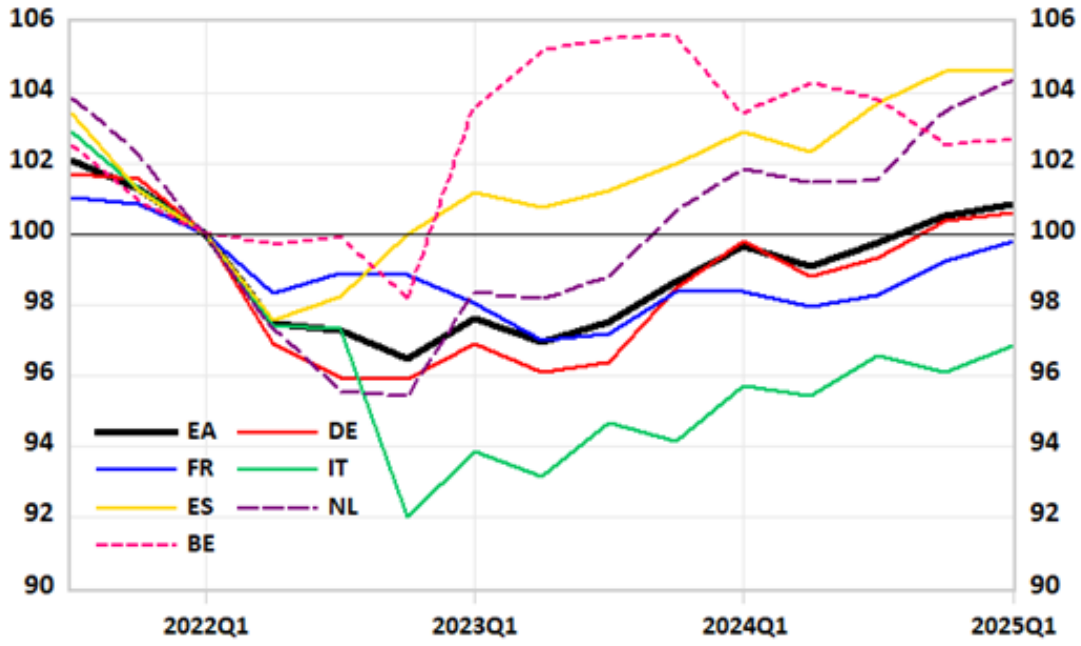
2. NOMINAL WAGE RIGIDITIES DIFFER WIDELY: IT vs BE, FR

Country	Wage setting
Belgium	Yearly indexation, real wage norm (2y)
France	Yearly+ negotiations, indexed min wage
Austria, Netherlands	Negotiations every 1-2 years
Germany	Negotiations every 2 years
Spain	Negotiations every 2-3 years
Italy	Negotiations every 3 years based on expected inflation (excl. energy)

Nominal wage rigidity

Sources: Gornicka et al. (2023) and Koester and Grapow (2021)

Cumulated real wage growth (100=2022Q1)



Sources: Eurostat, Banque de France calculations
Notes: Nominal compensation per employee deflated by total HICP. Compensation of employees consists of wages and salaries, and of employers' social contributions.

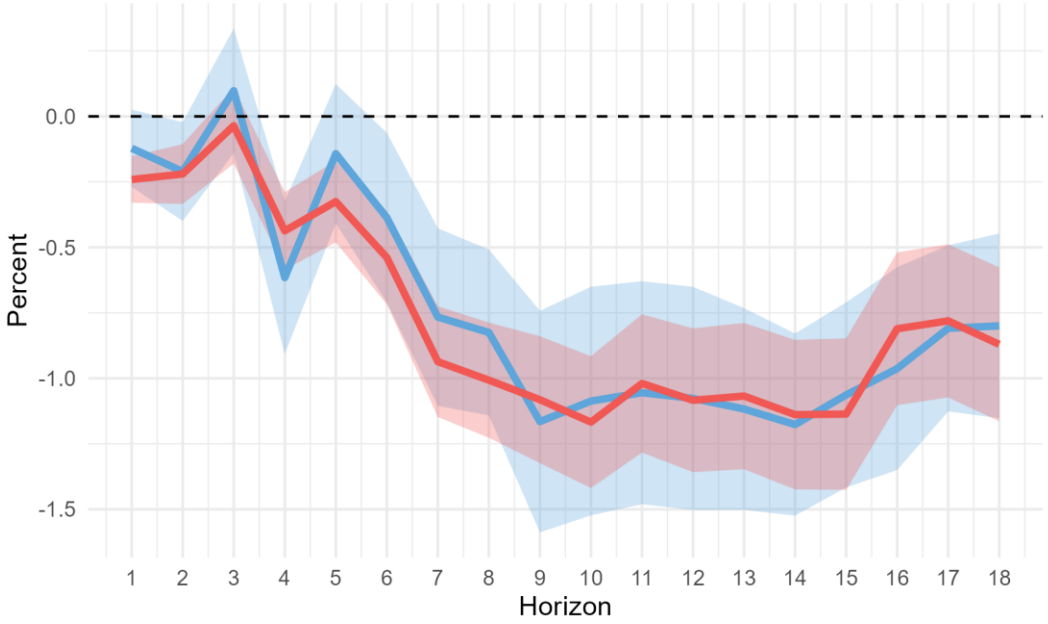
MONETARY POLICY TRANSMISSION IS REASONABLY HOMOGENOUS AFTER ALL

- ✓ Local projections for EA and 11 EA countries;
- ✓ Jan. 2000 – Dec. 2024, excl. March-Oct. 2020;
- ✓ Shocks: monetary policy **surprises** (Jarociński and Karadi 2020 methodology); shocks are then rescaled;
- ✓ Controls: GDP, inflation, OIS1Y, GDP_{EA}, $inflation_{EA}$, oil price, €/$.

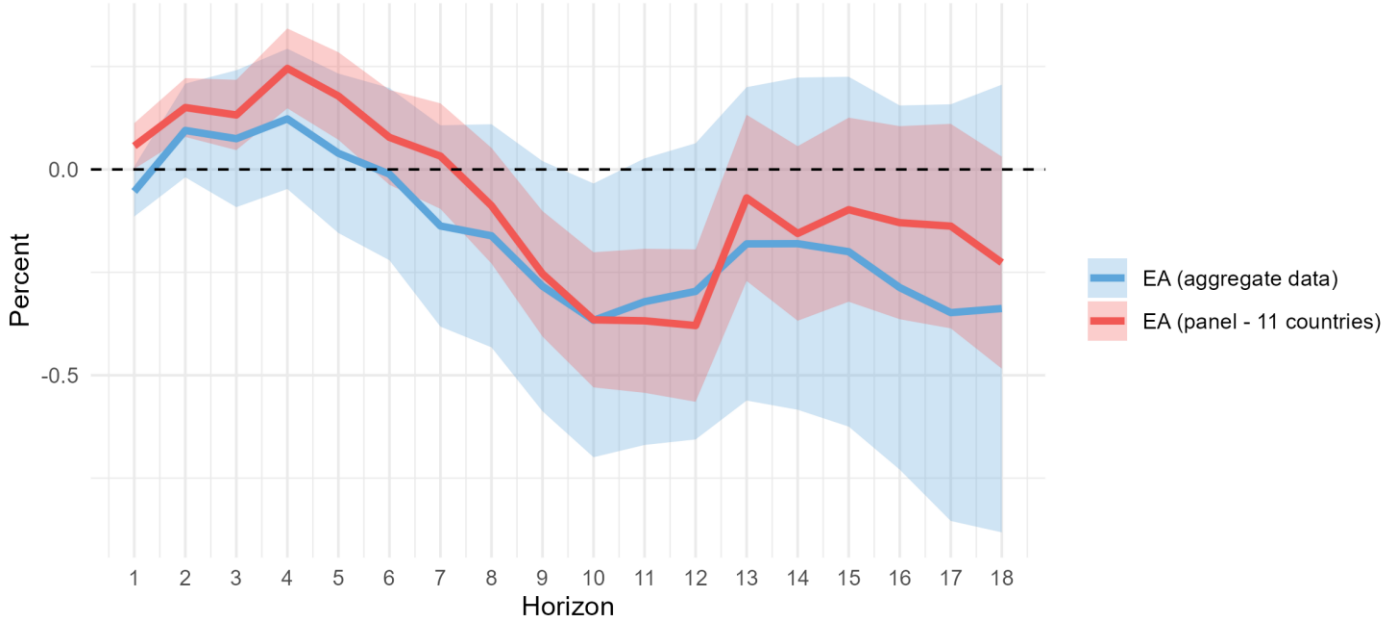
HETEROGENEITY APPEARS TO BE CONTAINED

Impact of a monetary policy shock normalized to trigger a 25bp increase in the OIS1Y

REAL GDP



HICP

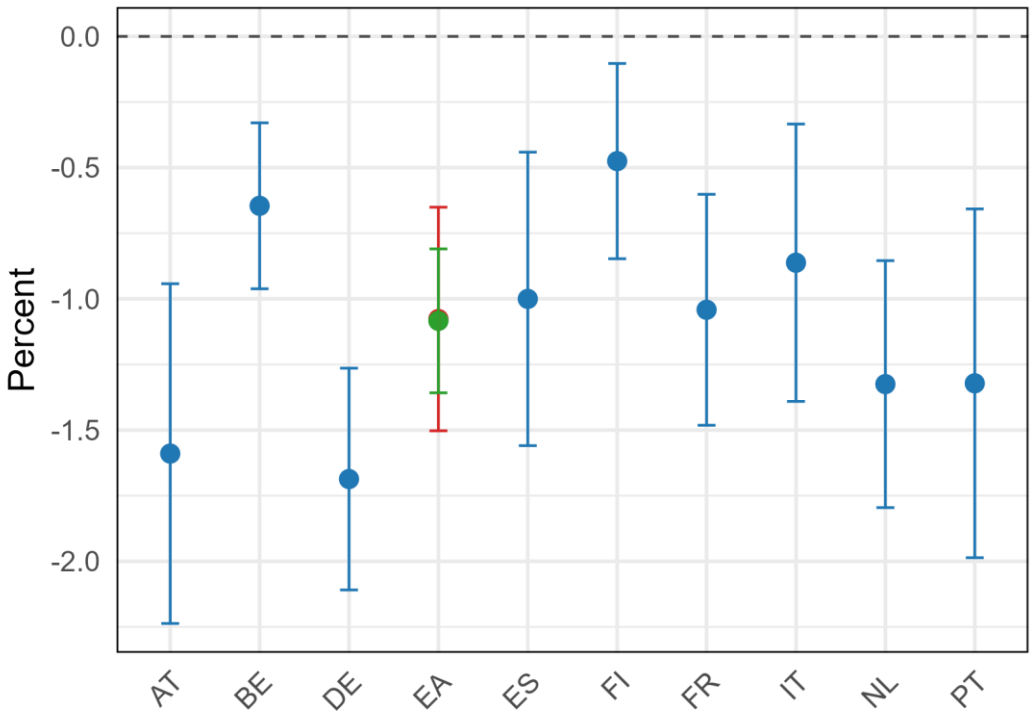


Sources: Banque de France calculations.
Notes: Impulse response functions to a monetary policy shock normalized to trigger a 25bps increase in the OIS1Y at impact. The estimates rely on standard country-specific and panel local projections following Jorda (2005). The balanced panel contains France, Germany, Italy, Spain, Portugal, Luxembourg, Belgium, Ireland, Finland, Netherlands and Austria. High-frequency financial market data are used to identify exogenous variation in monetary policy interest rates, following Jarociński and Karadi (2020) methodology. The monthly estimation spans from January 2000 to December 2024, excluding the Covid period. The shaded area shows the one standard deviation confidence interval.

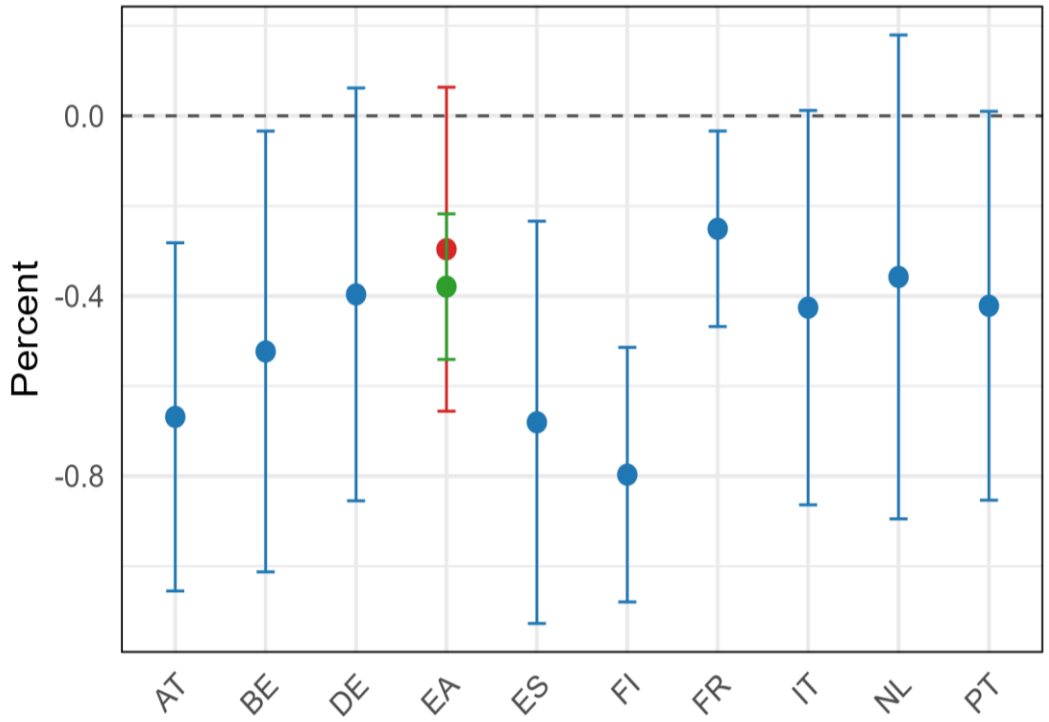
ZOOMING IN: SOME HETEROGENEITY

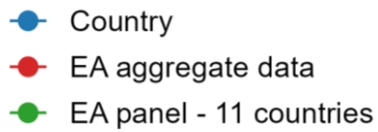
But difficult to connect it to structural differences

REAL GDP (after 12 months)



HICP (after 12 months)

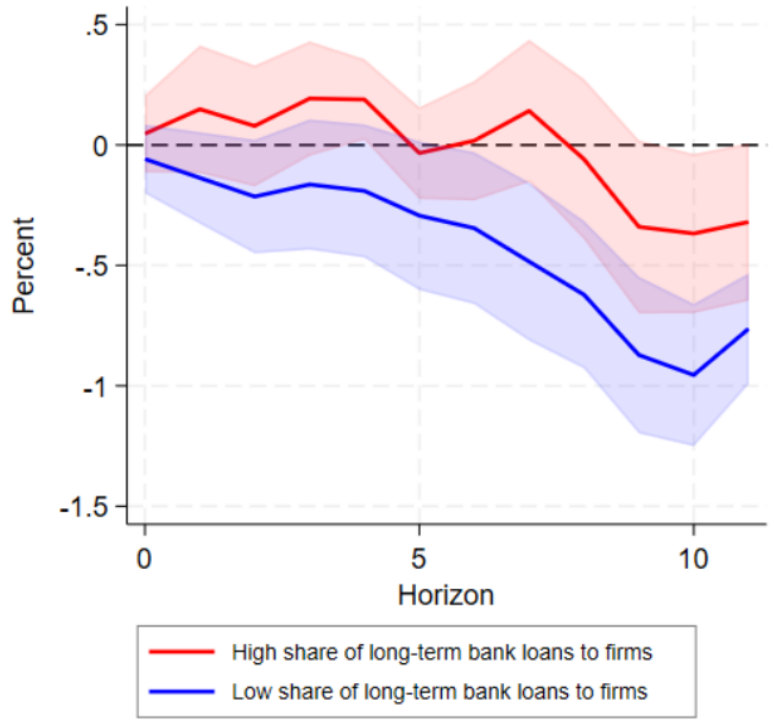




Sources: Banque de France calculations.
Notes: Impulse response functions at h=12 months to a monetary policy shock normalized to trigger a 25bps increase in the OIS1Y at impact. The estimates rely on standard country-specific and panel local projections following Jorda (2005). The balanced panel contains France, Germany, Italy, Spain, Portugal, Luxembourg, Belgium, Ireland, Finland, Netherlands and Austria. High-frequency financial market data are used to identify exogenous variation in monetary policy interest rates, following Jarociński and Karadi (2020) methodology. The monthly estimation spans from January 2000 to December 2024, excluding the Covid period. Each estimate is surrounded by its one standard deviation confidence interval (68%).

NFCs' LOAN MATURITY SEEMS TO MATTER

Impact of monetary policy shock on HICP inflation



Sources: Banque de France calculations.
Notes: State-dependent impulse response to a monetary policy shock. The estimates rely on panel state-dependent local projections inspired from the approach of Ramey and Zubairy (2014). The monetary policy shock is interacted with a dummy variable that distinguishes between high versus low share of long-term bank loans to firms. Long-term bank loans to firms are defined with a maturity equal of five years or more. The high versus low classification is based on the median share of long term bank loans which is equal to 67.7% (with a minimum of 26.7% and a maximum of 82.4%). The shaded areas show the 90% confidence interval of each IRF.

Wald test of equality

Horizons	p-value
0	0,362
1	0,151
2	0,092
3	0,072
4	0,054
5	0,223
6	0,145
7	**0,016**
8	**0,038**
9	**0,089**
10	**0,041**
11	**0,076**
12	**0,099**

Sources: Banque de France calculations.
Notes: Wald test of equality of the two-states impulse response functions (H0). The lower the p-value, the stronger the evidence against their equality.

CONCLUSION

Significant structural heterogeneities <u>across</u> EA countries

- Some heterogeneity in monetary policy transmission; but difficult to connect to structural heterogeneities (except, possibly, for debt maturity)

Heterogeneities <u>within</u> EA countries may have more implications at aggregate EA level:

- Different sectors: capital intensity, price setting (e.g. services vs goods)
- Large vs small firms
- Creditor vs debtor households…