Market Perceptions, Monetary Policy, and Credibility

Vincenzo Cuciniello
Bank of Italy

OeNB | SUERF Annual Economic Conference 2024 - June 2024

Motivation

- Almost 95% of central banks **increased policy rates** from early 2021 to mid-2023 (BIS 2023).
- Two factors impact policy transmission effectiveness:
  1. The greater the **public perception of the central bank's actions**, the larger the impact on future expectations of interest rates, asset prices, spending decisions, and ultimately, inflation (Woodford 2005).
  2. A more **credible commitment to a long-run inflation target** enhances macroeconomic stability (Orphanides-Williams 2005).
- Has the financial market's perception of the ECB's reaction function changed? To what extent does the perceived monetary policy responsiveness to inflation contribute to the ECB's credibility?

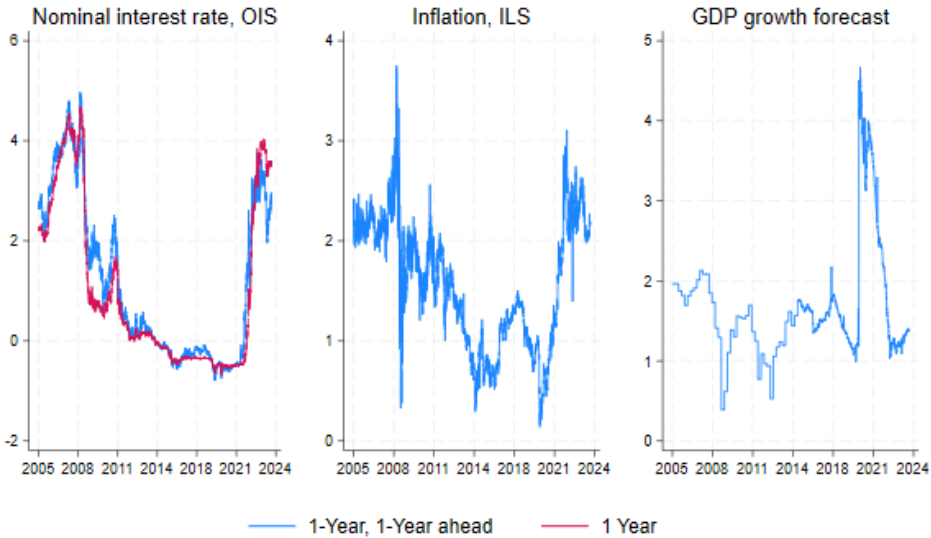
This paper

- Approach:
  1. High-frequency data to estimate response of expected nominal interest rates to inflation expectations, ϕ
  2. **Pass-through of short- to long-term inflation expectations** conditional on ϕ
- Findings:
  1. **Significant and sizable changes in** ϕ after exiting from the ELB
  2. **Strengthened** ϕ **enhances credibility** by reducing long-term inflation expectation sensitivity to short-term fluctuations.

Data

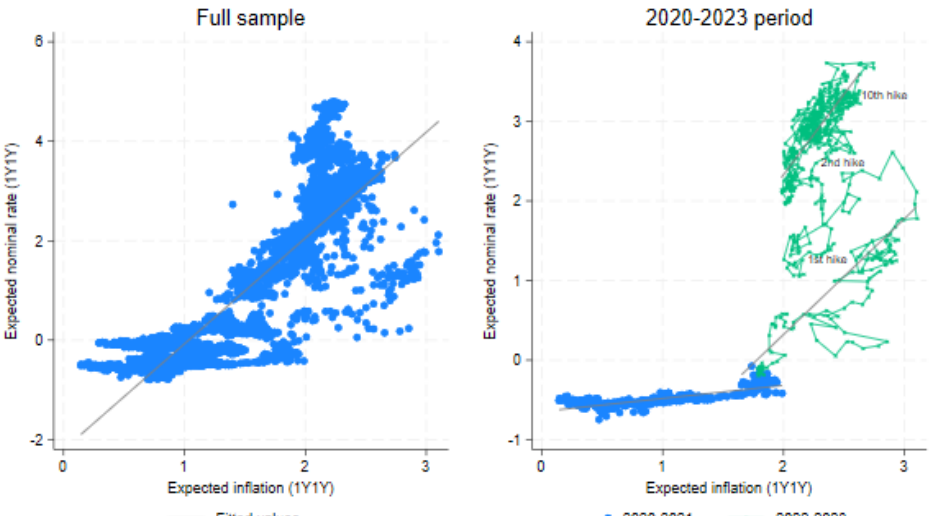
- **Financial and survey** data on the Euro area from 2005 to 2024
- **Daily data** on short-run expectations:
  - ILS rates from Bloomberg
  - OIS rates from LSEG
  - Forecast of GDP growth rate from Continuous Consensus Forecasts
- **Quarterly data** on long-run expectations:
  - 6-to-10-year forecasts of inflation, GDP growth rate, and 3-month Euribor rate from Consensus Economics

Short-term expectations



- I exclude: global financial crisis (2007:M8 - 2009:M8) and sovereign debt crisis (2011:M8 - 2012:M8)
- I use quarterly GDP growth rate forecasts before 2015:M4

Correlation between OIS and ILS



Conceptual framework

Market participants believe that the central bank follows a simple policy rule:

$$i_t = \rho i_{t-1} + \alpha \bar{i}_t + \phi(\pi_t - \bar{\pi}_t) + \tau(g_t - \bar{g}_t) + \mu_t \tag{1}$$

Taking expectations at date t

$$\mathbb{E}_t[i_k] = \rho \mathbb{E}_t[i_{k-1}] + \alpha \mathbb{E}_t[\bar{i}] + \phi \mathbb{E}_t[\pi_k - \bar{\pi}] + \tau \mathbb{E}_t[g_k - \bar{g}] + \mathbb{E}_t[\mu_k] \tag{2}$$

- k denotes a short-run horizon (**1-year, 1-year-ahead**)
- $\bar{}$ denotes a long-run horizon (**6-10 year**)
- Identification: 3-day window around **HICP inflation flash releases** (higher volatility of ILS and GDP growth rates) Details

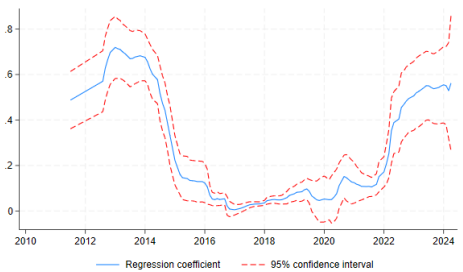
Baseline results

VARIABLES	(1) Full sample OLS	(2) Full sample 2SLS	(3) 05-12 OLS	(4) 13-21 OLS	(5) 22-24 OLS
$\pi_{1y1y} - \bar{\pi}$	0.46***	0.59***	0.79***	0.13***	0.47**
	(0.040)	(0.084)	(0.102)	(0.016)	(0.185)
$g_{1y1y} - \bar{g}$	0.08***	0.15***		0.02***	-0.17***
	(0.019)	(0.046)		(0.006)	(0.064)
i_{1y}	0.66***	0.62***	0.67***	0.89***	0.34***
	(0.030)	(0.032)	(0.023)	(0.030)	(0.063)
$\bar{i}$	0.26***	0.29***	0.29***	0.09***	0.55***
	(0.016)	(0.021)	(0.016)	(0.007)	(0.083)
Observations	564	4,098	143	324	85

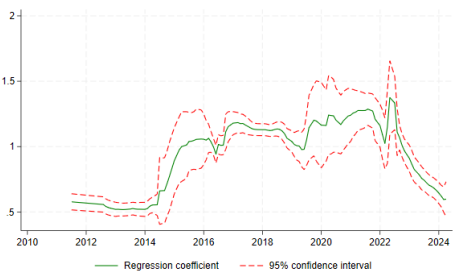
- OLS: **3-day window** around the HICP inflation flash releases
- 2SLS: **macroeconomic surprises** on the dates of the HICP inflation flash releases are used as instrumental variables for inflation and output gaps

The path of $\hat{\phi}$ and $\hat{\rho}$

Inflation gap coefficient $\hat{\phi}$



Inertial coefficient $\hat{\rho}$



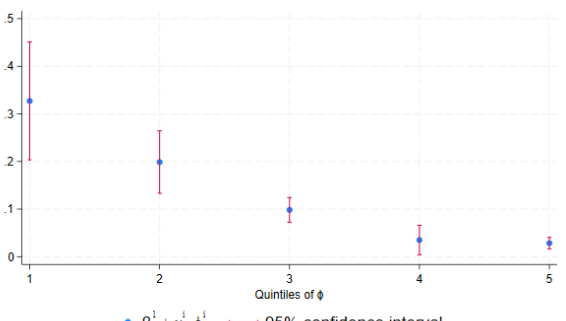
- 4-year rolling OLS regression around the HICP flash release date (3-day window)
- $\hat{\phi}$ and $\hat{\rho}$ stable between 2015-2021
- $\hat{\phi}$ increases (more aggressiveness) and $\hat{\rho}$ decreases (data-dependent and meeting-by-meeting approach) since 2022

Short- to long-term inflation expectation pass-through

I run the following regression:

$$\Delta\pi_{5y5y} = \sum_{i=1}^{5} \left\{ \xi^i + \beta^i \Delta\pi_{1y} + \chi^i [\hat{\phi}^i_{1y1y} \times \Delta\pi_{1y}] + \theta \hat{\phi}^i_{1y1y} \right\} \mathbf{I}^i + z_t, \tag{3}$$

where Δ denotes daily changes and $\mathbf{I}^i$ is an indicator equal to 1 when $\hat{\phi}_{1y1y}$ belongs to quantile i and 0 otherwise.



- The pass-through from short- to long-run inflation expectations decreases in $\hat{\phi}$ ($\chi < 0$)

Conclusions

- New method for testing perceived shifts in the monetary policy rule
- Robust evidence indicates a shift to a more aggressive monetary policy response to inflation exiting from the ELB
- Stronger perceived response to inflation is associated with lower pass-through from short- to long-term inflation expectations, suggesting a more credible commitment to a long-run inflation target

Volatility of ILS and GDP growth rate forecast

Let $|\widetilde{y}_t|$ be the 3-day absolute change in $y \in \{\pi, g\}$ **around the HICP inflation flash release date** t,
I estimate the following equation:

$$|\widetilde{y}_t| = a + k_{-4}R_{t-4} + k_{-2}R_{t-2} + k_0 R_t + k_{+2}R_{t+2} + k_{+4}R_{t+4} + \sum_{x=1}^{7} b_x |\widetilde{y}_{t-x}| + m_t + e_t, \quad (4)$$

where R_{t+x} is a dummy variable equal to one when data release occurs x days from t. Return

VARIABLES	(1) $\lvert\widetilde{\pi}_{1y}\rvert$	(2) $\lvert\widetilde{\pi}_{1y1y}\rvert$	(3) $\lvert\widetilde{g}_{1y}\rvert$	(4) $\lvert\widetilde{g}_{1y1y}\rvert$
k_{-4}	0.002	-0.001	0.015*	0.009**
	(0.005)	(0.003)	(0.008)	(0.004)
k_{-2}	0.043***	0.002	0.015	0.007*
	(0.012)	(0.004)	(0.010)	(0.004)
k_0	0.096***	0.014**	0.050*	0.027**
	(0.021)	(0.006)	(0.029)	(0.011)
k_{+2}	-0.050***	-0.004	0.012	0.001
	(0.010)	(0.006)	(0.013)	(0.005)
k_{+4}	-0.030***	-0.003	0.004	-0.000
	(0.007)	(0.004)	(0.011)	(0.004)
Constant	0.017***	0.014***	0.009	0.006***
	(0.004)	(0.003)	(0.007)	(0.002)
Observations	2,345	2,345	2,358	2,358
R-squared	0.472	0.246	0.586	0.512
month FE	Y	Y	Y	Y

Volatility of ILS and GDP growth rate forecast

Let $|\widetilde{y}_t|$ be the 3-day absolute change in $y \in \{\pi, g\}$ **around the ECB monetary policy meeting date** t.
I estimate the following equation:

$$|\widetilde{y}_t| = a + k_{-4}R_{t-4} + k_{-2}R_{t-2} + k_0 R_t + k_{+2}R_{t+2} + k_{+4}R_{t+4} + \sum_{x=1}^{7} b_x |\widetilde{y}_{t-x}| + m_t + e_t, \quad (5)$$

where R_{t+x} is a dummy variable equal to one when the monetary policy decision occurs x days from t. Return

VARIABLES	(1) $\lvert\widetilde{\pi}_{1y}\rvert$	(2) $\lvert\widetilde{\pi}_{1y1y}\rvert$	(3) $\lvert\widetilde{g}_{1y}\rvert$	(4) $\lvert\widetilde{g}_{1y1y}\rvert$
k_{-4}	-0.004	-0.003	0.010	-0.007
	(0.014)	(0.005)	(0.016)	(0.005)
k_{-2}	0.002	0.002	-0.006	-0.005
	(0.014)	(0.004)	(0.014)	(0.004)
k_0	0.000	-0.004	-0.006	-0.003
	(0.010)	(0.005)	(0.012)	(0.005)
k_{+2}	0.001	-0.000	-0.020*	-0.010***
	(0.008)	(0.005)	(0.011)	(0.003)
k_{+4}	0.005	0.000	-0.008	-0.004
	(0.008)	(0.005)	(0.011)	(0.005)
Constant	0.021***	0.014***	0.014*	0.009***
	(0.004)	(0.003)	(0.008)	(0.002)
Observations	2,345	2,345	2,358	2,358
R-squared	0.429	0.242	0.586	0.510
month FE	Y	Y	Y	Y