

The Effects of UK Monetary Policy

A New Market-based Instrument

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What we do

- We conduct a novel empirical analysis on the impact of UK monetary policy on the macroeconomy and the financial market.
- We identify monetary policy surprises as daily changes in the Sterling Overnight Index Average (SONIA) around Bank of England's MPC meetings. The SONIA replaces the LIBOR as the benchmark inter-bank risk-free rate at the end of 2021.
- We find that output and CPI contract by about 2% and 0.5%, respectively, after 12 months following a positive monetary surprise.
- Our measure of UK monetary surprise is robust to different specifications, and performs better relative to LIBOR-based and narrative identification approach.

Why SONIA?

- “SONIA is a measure of interest rates at which the interest is paid on sterling short term transaction wholesale fund in circumstances where credit/liquidity and other risks are minimal” (Bank of England, 2023)
- A better measure of the general level of interest rates since it does not encompass bank credit risk
- As a market-based instrument, it conveys the BOE’s interest rate decisions to the economy over any given period, both under conventional and unconventional monetary regimes.
- New benchmark risk-free rate vs. Libor-based instruments (Gerko & Rey, 2017; Cesa-Bianchi et al., 2020; Gortz et al., 2023; Braun et al., 2025)
- **How useful is the SONIA as an instrument of monetary policy?**

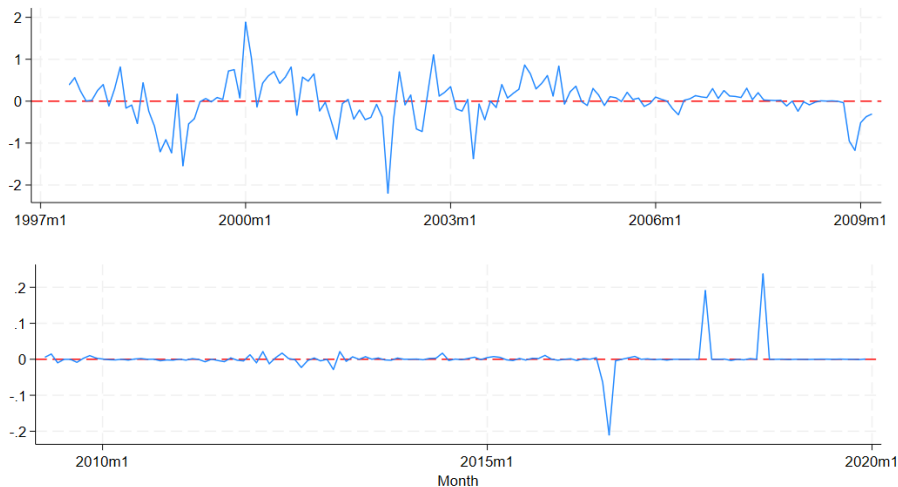
- We identify monetary policy surprises as the daily changes around Bank of England's MPC meetings:

$$MPS_m = S_{m,t} - S_{m,t-1}$$

- The surprises are cumulated within month to create a monthly frequency.
- We set the monetary surprises to zero in months with no MPC meetings.

New Measure of UK Monetary Policy Surprises

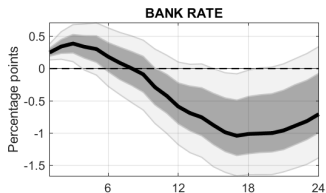
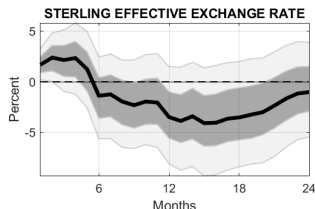
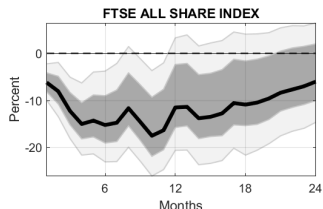
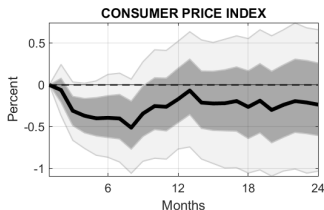
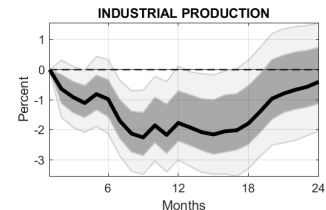
SONIA-based Monetary Policy Surprises



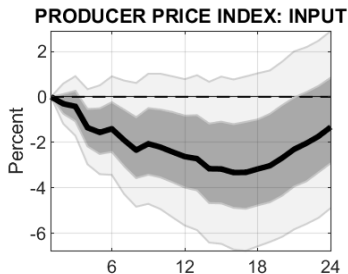
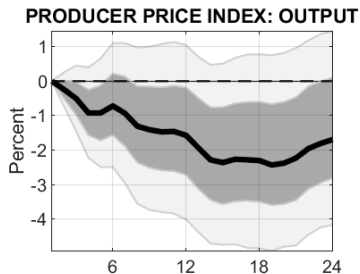
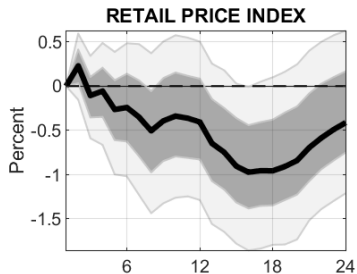
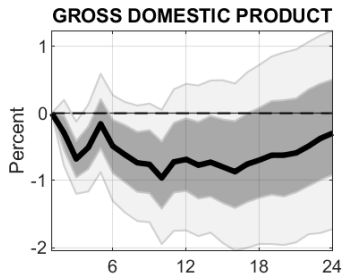
Identification and Empirical Strategy

- We then use the MPS_m as an instrument for monetary policy in an estimated VAR model for the UK economy.
- We also consider alternative constructs of the MPS_m , accounting for global credit conditions, QE, central forecasts, and a large set of macro-financial factors.
- Baseline specification: industrial production, CPI, commodity price index, effective exchange rate, equity prices, and the Bank Rate (1997M5 – 2019M12). Also contains 12 lags, a constant and a time trend.

Effects of UK Monetary Policy

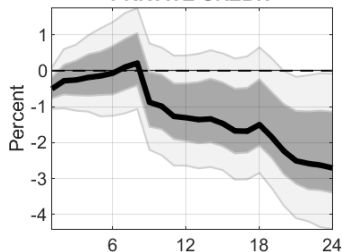


Effects of UK Monetary Policy

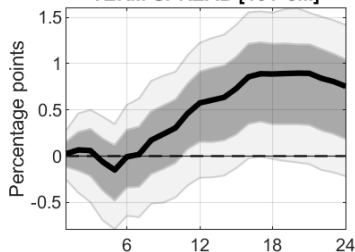


Effects of UK Monetary Policy

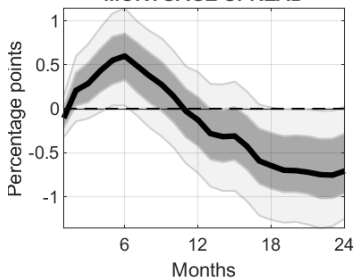
PRIVATE CREDIT



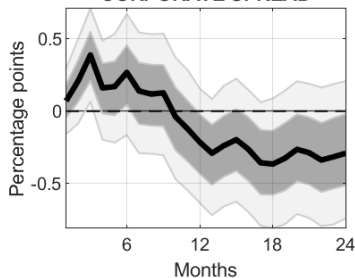
TERM SPREAD [10Y-3M]



MORTGAGE SPREAD



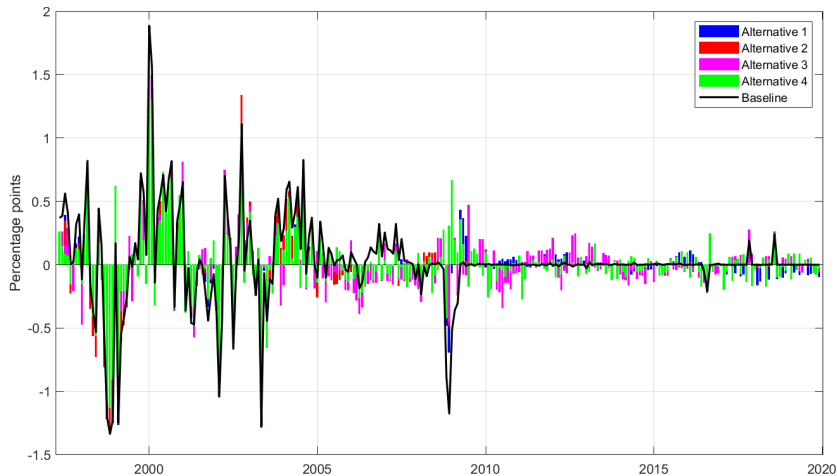
CORPORATE SPREAD



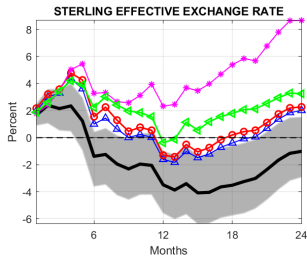
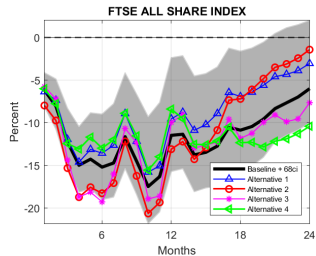
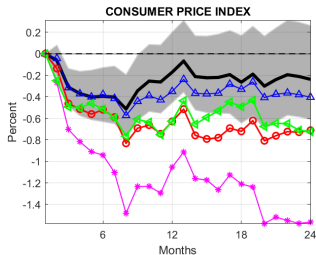
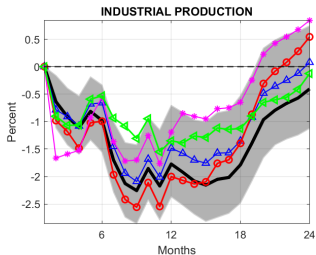
Monetary Surprises and Macro-financial Conditions

- We account for the following macro-financial conditions in order to understand how they affect the transmission of monetary policy surprises
 - **Alternative 1**: Global credit conditions (Caldara & Herbst, 2019; Champagne & Sekkel, 2018)
 - **Alternative 2**: Global credit condition + QE regime (Altavilla et al., 2019; Rogers, et al., 2019)
 - **Alternative 3**: Global credit condition + QE regime + BoE inflation and output forecasts (Miranda-Agrippino & Ricco, 2021)
 - **Alternative 4**: 12 orthogonal factors extracted from 130 macroeconomic and financial series for the UK.

Monetary Surprises and Macro-financial Conditions



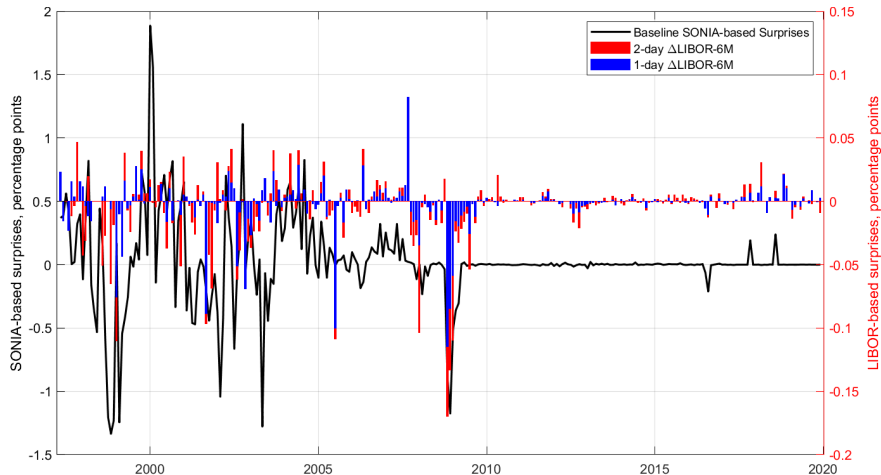
Monetary Surprises and Macro-financial Conditions



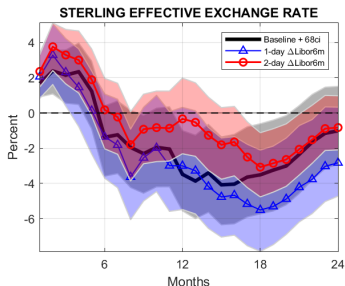
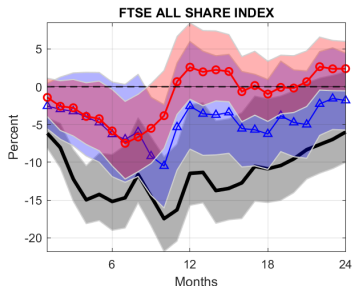
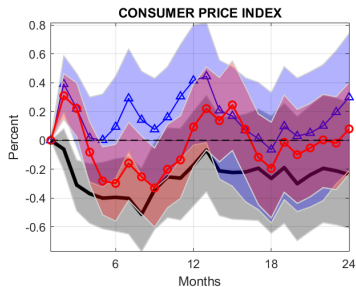
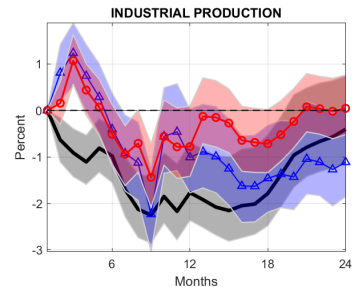
SONIA vs. LIBOR-based Surprises

- How does our SONIA-based measure monetary policy surprise series compare to Libor-based measures, a la Gortz et al. (2023)?

SONIA vs. LIBOR-based Surprises



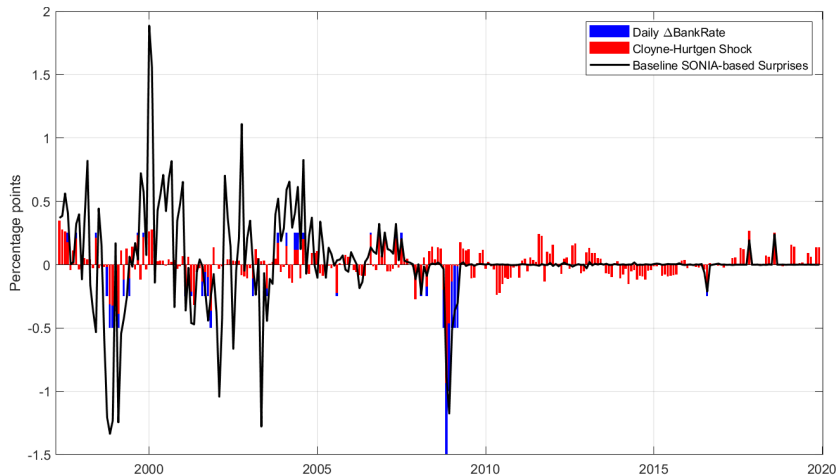
SONIA vs. LIBOR-based Surprises



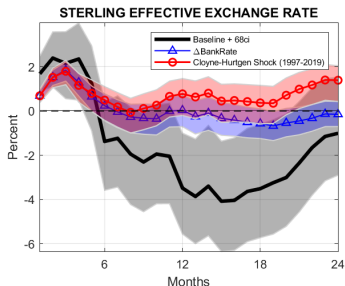
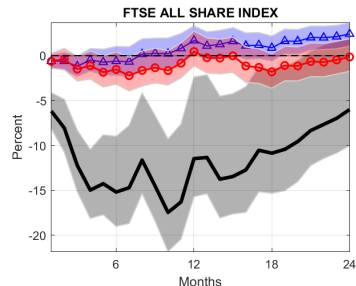
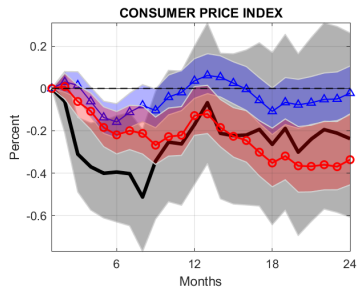
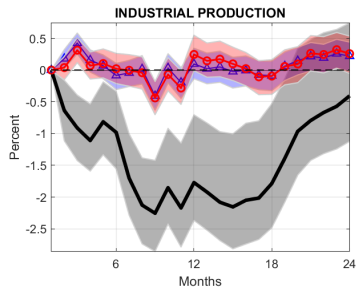
SONIA-based Surprises vs. Bank Rate Changes

- How does our market-based identification of monetary policy compare to narrative approach based on *actual* changes in the Bank Rate, a la Cloyne and Hürtgen (2016)?

SONIA-based Surprises vs. Bank Rate Changes



SONIA-based Surprises vs. Bank Rate Changes

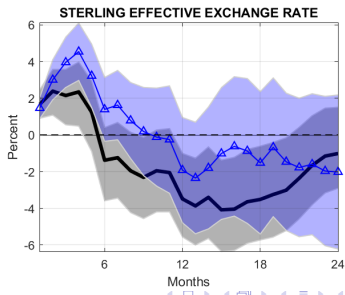
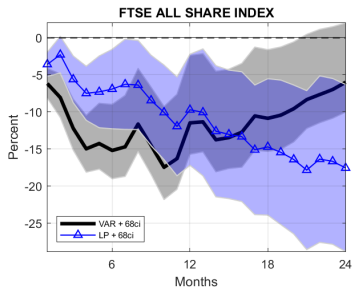
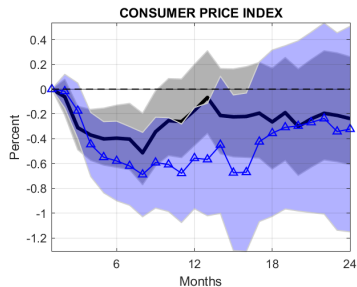
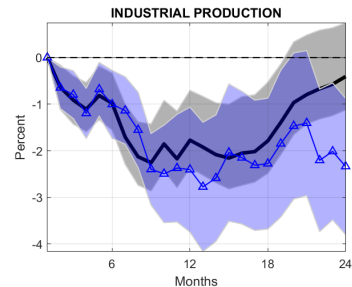


VAR vs. Local Projection

- We further employ a local projection approach to estimate our baseline model

$$x_{t+h} - x_t = c + \beta_h MPS_t + \Phi_h(L)z_{t-1} + \epsilon_{t+h} \quad \text{for } h = 0, 1, 2, \dots$$

VAR vs. Local Projection



Conclusion

- We construct a novel measure of UK monetary policy surprises based on daily changes in SONIA around the BOE's policy announcements.
- Innovations to the new monetary policy instrument reduces output and prices sharply by about 2% and 0.5%, respectively, within a year of the shock.
- Our measure of UK monetary policy surprises performs comparably well to LIBOR-based approach and narrative approach that have been used in the literature.
- Our analysis highlights the importance of monetary policy reversal (self-correction) after the peak price and output effect.