The Taming of the Skew: Asymmetric Inflation Risk and Monetary Policy

Discussion of De Polis, Melosi and Petrella (2024)

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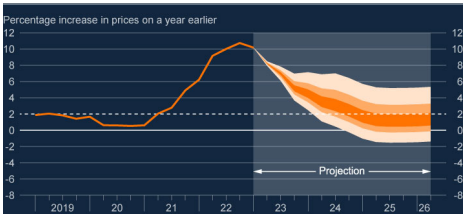
September 2024

The views expressed here do not necessarily reflect the position of the Bank of England.

Our Cast: The Taming of the *Shrew*

Petruchio (‘Tamer’) Katharina (‘Shrew’) Bianca (‘Ideal’)

Our Cast: The Taming of the *Skew*



Jay Powell and the FOMC ('Tamer')

Skewed Inflation Outlook ('Shrew')

Price Stability ('Ideal')

This Paper

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- **Key Ingredients**:
  - Reduced-form skew-t model for π with time-varying moments [Delle Monache et al., 2024]
  - Time-varying skew in *linear* NK-DSGE + Optimal policy with *quadratic* losses

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  - Time-varying skew in *linear* NK-DSGE + Optimal policy with *quadratic* losses
- **Main Results**:
  - Robust empirical evidence of time-varying π skew in the US data
    - Skew-t model delivers forecasting improvements vs. UCSV model, *and* comparable to SPF
  - π-skew plays role in optimal monetary policy
    - Raises *new* questions about Fed's Flexible-Average Inflation Targeting (FAIT)
    - ? Proposes alternative Risk-Adjusted Inflation Targeting (RAIT) framework

#1. More To The Empirical Model Than Meets the Eye?

Reduced-form model for inflation π_t:

$$\pi_t \sim Skt_\nu(\mu_t, \sigma_t^2, \varrho_t)$$

where for each $f_{i,t}$ in $f_t = \{\mu_t, \delta_t = \log(\sigma_t), \gamma_t = \arctan(\varrho_t)\}$:

$$f_{i,t} = \underbrace{\overline{f}_{i,t}}_{\text{permanent}} + \underbrace{\tilde{f}_{i,t}}_{\text{transitory}}$$

with $\overline{f}_{i,t} = \overline{f}_{i,t-1} + a_i s_{i,t-1}$ and $\tilde{f}_{i,t} = \phi_i \tilde{f}_{i,t-1} + b_i s_{i,t-1}$, where $s_{i,t}$ is scaled score

Estimated via Bayesian methods

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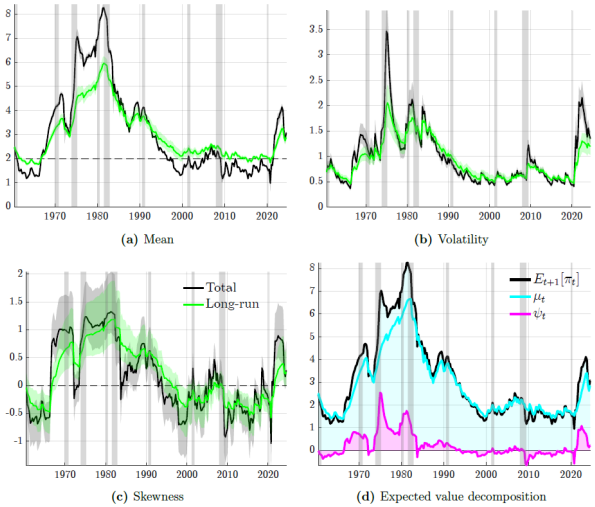

(a) Mean (b) Volatility

(c) Skewness (d) Expected value decomposition

Recent policy discourse around π focused on **persistence**

"Participants generally noted their uncertainty about the persistence of high inflation and expressed the view that recent data had not increased their confidence that inflation was moving sustainably down to 2 percent"

[FOMC Minutes, March 2024]

Qn: What can we learn about persistence from model's permanent components?

#2. What Drives the Skew?

Qn: Empirical model silent about economic *drivers* of skew...

...but these presumably matter for optimal policy prescriptions?

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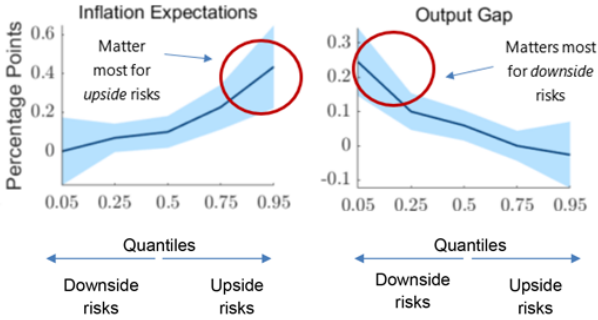
Alt. approach: quantile regression estimates highlight different sources of skew...:



[Anesti et al., 2023]

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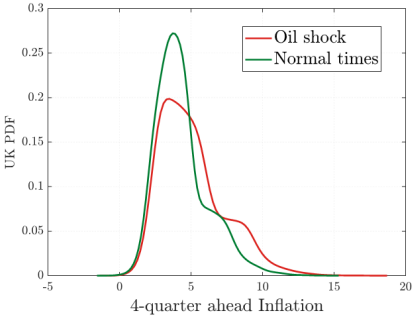
Alt. approach: ...with oil shocks having particular influence...:



[Garofalo et al., 2023]

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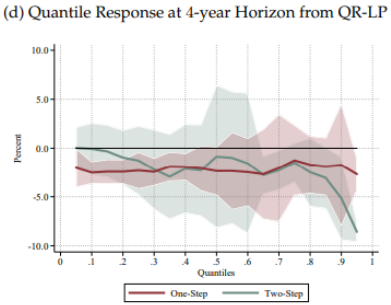
Alt. approach: ...and monetary policy also playing a role:



[Lloyd & Manuel, 2024]

#2. What Drives the Skew?

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Suggestion: *either* investigate extensions to empirical model to say more about economic drivers of skew *or* explore various potential sources of skew in NK-DSGE setup

Relatedly, but for later: how do joint distributions of policy-relevant macro variables evolve?

#3. RAIT? ... Wait!

Policy implications explored in LQ setup:

$$y_t = \mathbb{E}_t y_{t+1} + \varsigma^{-1}\left(\hat{i}_t - \mathbb{E}_t \hat{\pi}_{t+1}\right) \quad \text{(IS)}$$

$$\hat{\pi}_t = \kappa(y_t - y_t^*) + \beta \mathbb{E}_t \hat{\pi}_{t+1} + \varepsilon_t \quad \text{(PC)}$$

$$\hat{i}_t = \hat{\pi}_t + \phi_\pi(\hat{\pi}_t - \hat{\pi}_t^*) \quad \text{(MP)}$$

MP deals with interest-rate setting given state, then CB announce time-varying inflation target $\pi^*_{t+1|t}$ in each period to:

$$\min_{\pi^*_{t+1|t}} \mathcal{L}_{t+1|t} = \left(\mathbb{E}_t \hat{\pi}_{t+1}\right)^2$$

#3. RAIT? ... Wait!

Optimal policy sets $\hat{\pi}^*_{t+1|t}$ such that $\mathbb{E}_t \hat{\pi}_{t+1} = 0$ ...

...and, if shocks ε_t have asymmetric skew, a wedge opens up between the modal and mean inflation expectation:

$$\mathbb{E}_t \hat{\pi}_{t+1} = \mu_{t+1|t} + \psi_{t+1|t}$$

...so CB announces time-varying target to correct 'bias' from the skew...

RAIT: *adjust $\hat{\pi}^*_t$ to counteract expected direction of inflation risk*

#3. RAIT? ... Wait!

Two lessons and questions:

#1. **RAIT vs. FAIT**:

- Highlights *new* issues with Fed's FAIT
  - FAIT is *backward-looking* (corrects past mistakes), while RAIT is *forward-looking* (offsets predicted skew)

⇒ Relative to FAIT, RAIT delivers more gradual policy during post-Covid period

- **Qn**: Can authors provide fuller comparison of macro outcomes vs. FAIT?

#3. RAIT? ... Wait!

Two lessons and questions:

#2. **RAIT vs. Something Simpler**:

- Stripping away ability to set $\hat{\pi}^*$, targeting rules will always feature mean $\mathbb{E}_t\hat{\pi}_{t+1}$, not mode $\mu_{t+1|t}$, in LQ setup

$\Rightarrow$ Optimal policy *always* accounts for skew, even with symmetric target

- In principle, simple alternative rule looks like it could generate optimal outcomes with symmetric target and skew:

$$\hat{i}_t = \hat{\pi}_t + \phi_\pi(\mathbb{E}_t\hat{\pi}_{t+1} - \hat{\pi}^*_t) \qquad \text{(MP)}$$

- **Qn**: Aside benefits vs. FAIT, can authors discuss other benefits of RAIT vs. other (seemingly) simpler frameworks?

In Sum

- Skews prevalent in π outlook, and matter for monetary policy
- Skew-t model provides timely π-skew estimates, with favourable forecasting properties (comparable to SPF)
- Convincing arguments that RAIT $\succ$ FAIT

$\Rightarrow$ **We need more models of higher-order moments to inform policy**

My questions:

- Can empirical model features be more closely linked to recent policy debates around 'persistence'?
- Does the source of skew matter for policy? Can modelling be enriched to capture different economic drivers of skew?
- Is RAIT really preferable to symmetric inflation targeting?