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

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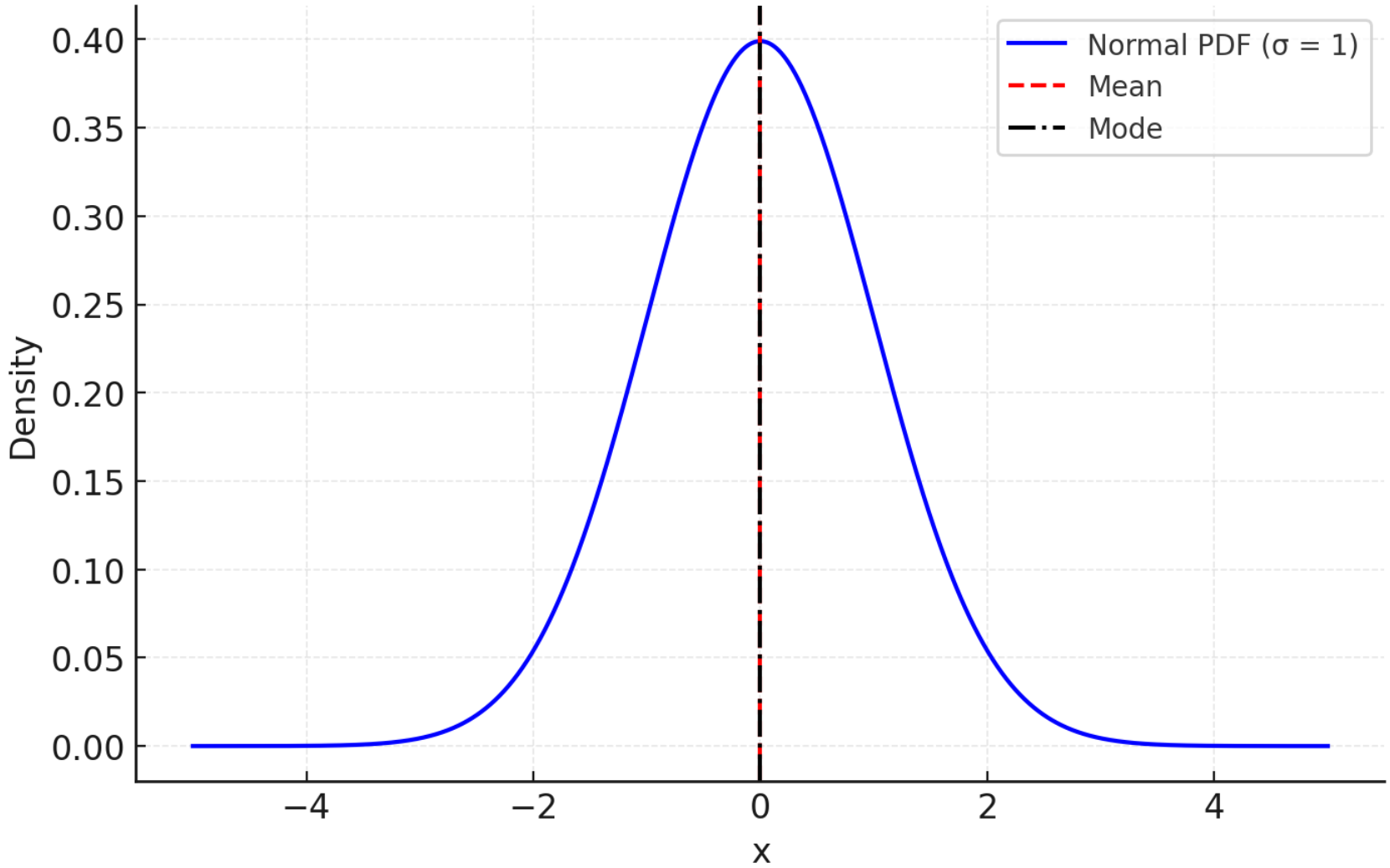
This paper

- Great paper that introduces a tractable way to think and account for asymmetric risks
  - Important implications for conducting monetary policy with risk management
- Question: What are the implications of evolving asymmetric risks?
  - How should monetary policy responds to such asymmetric risks?
- Methodology: Develop a new approach to incorporate asymmetric risks in macro models
  - Tractable approach focuses on difference between the mode and mean
- Finding: Inflation risks are time-varying and typically asymmetric
  - Optimal monetary polciy should lean against the balance of inflation risks

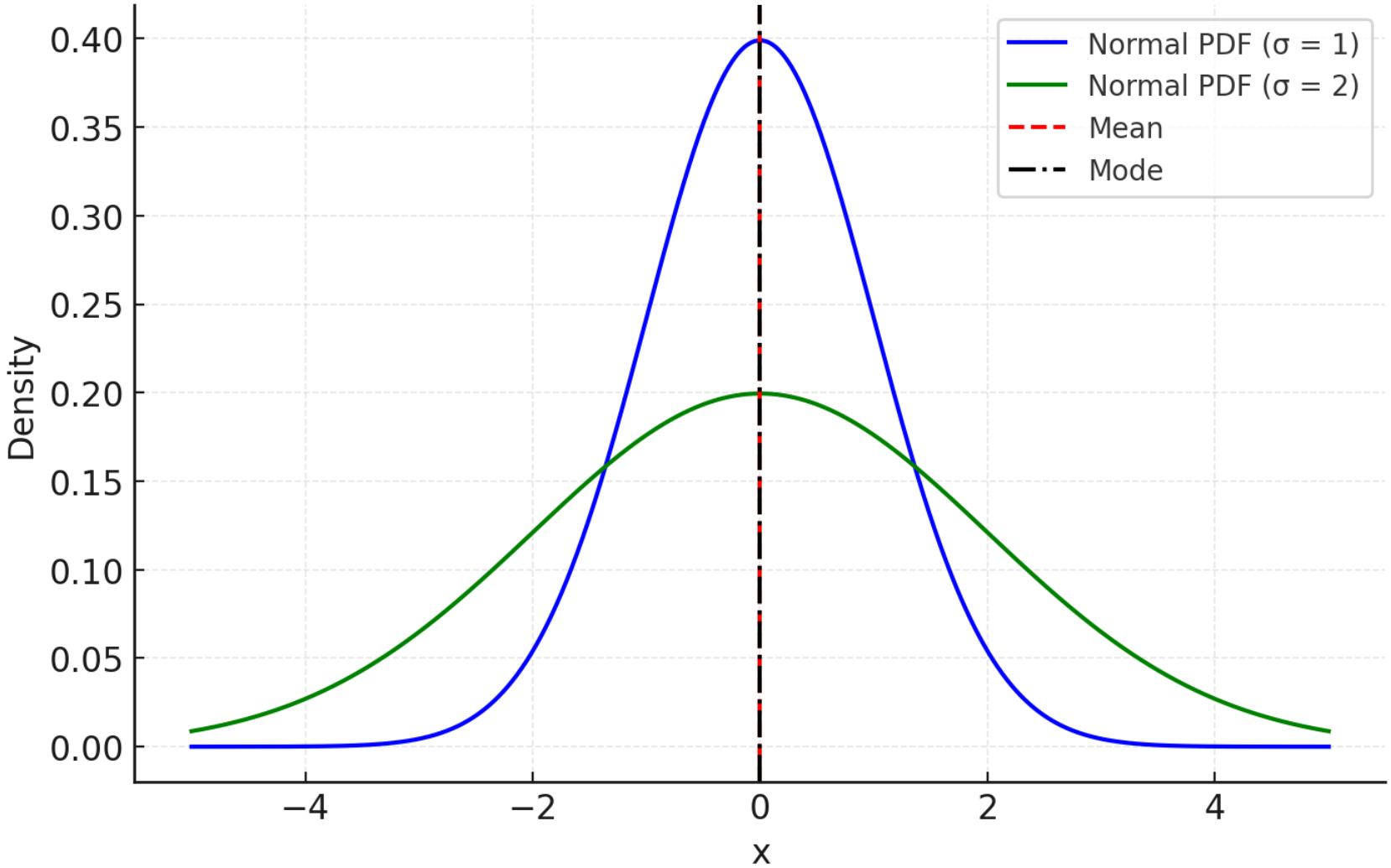
Main Concept of the Paper (I)

- Exogenous (mark-up) shocks are hitting the economy
  - Shock is drawn from a normal distribution



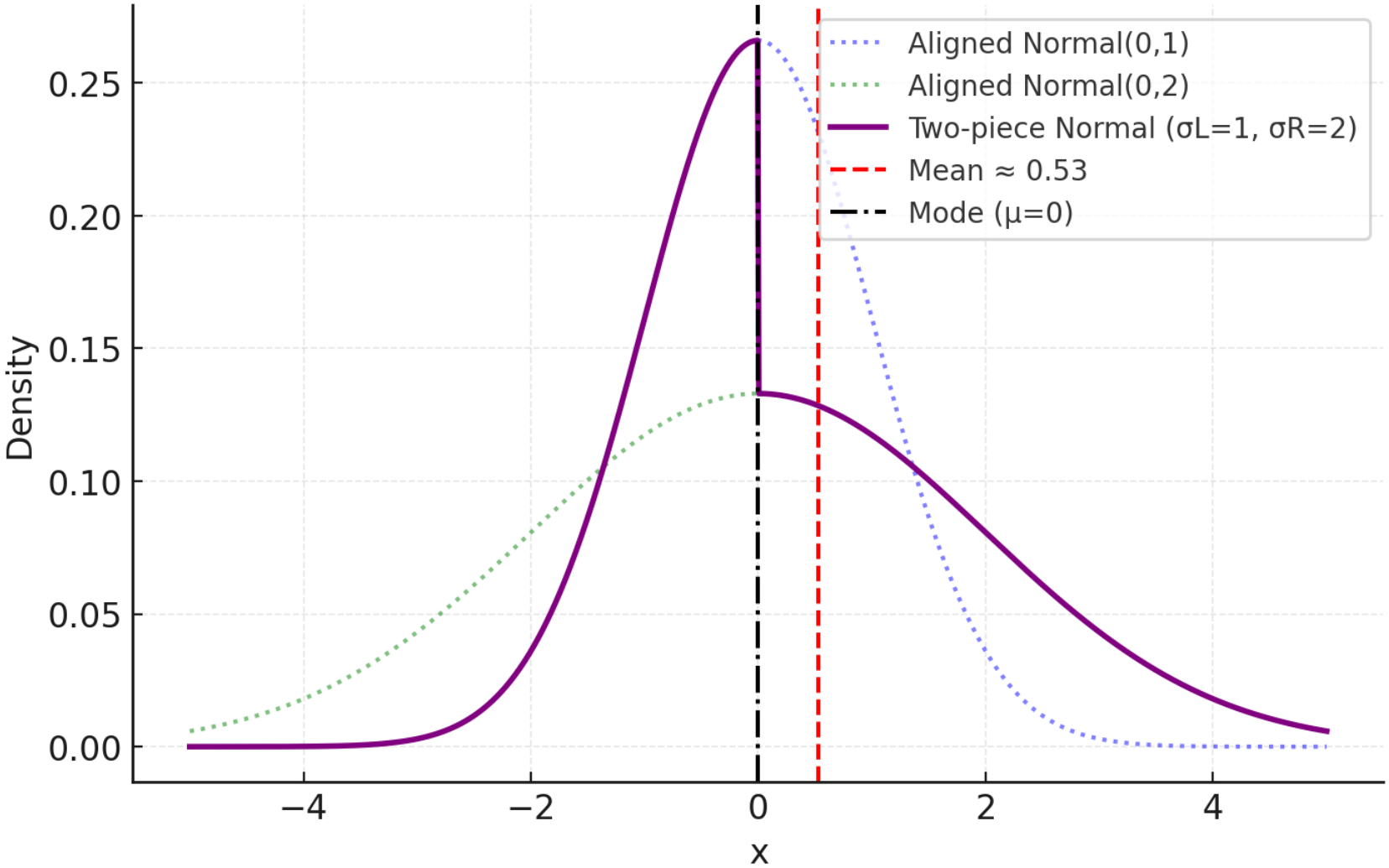
Main Concept of the Paper (II)

- Tail-risk of exogenous (mark-up) shocks can increase (uncertainty shock)
  - Shock is drawn from a dispersed normal distribution



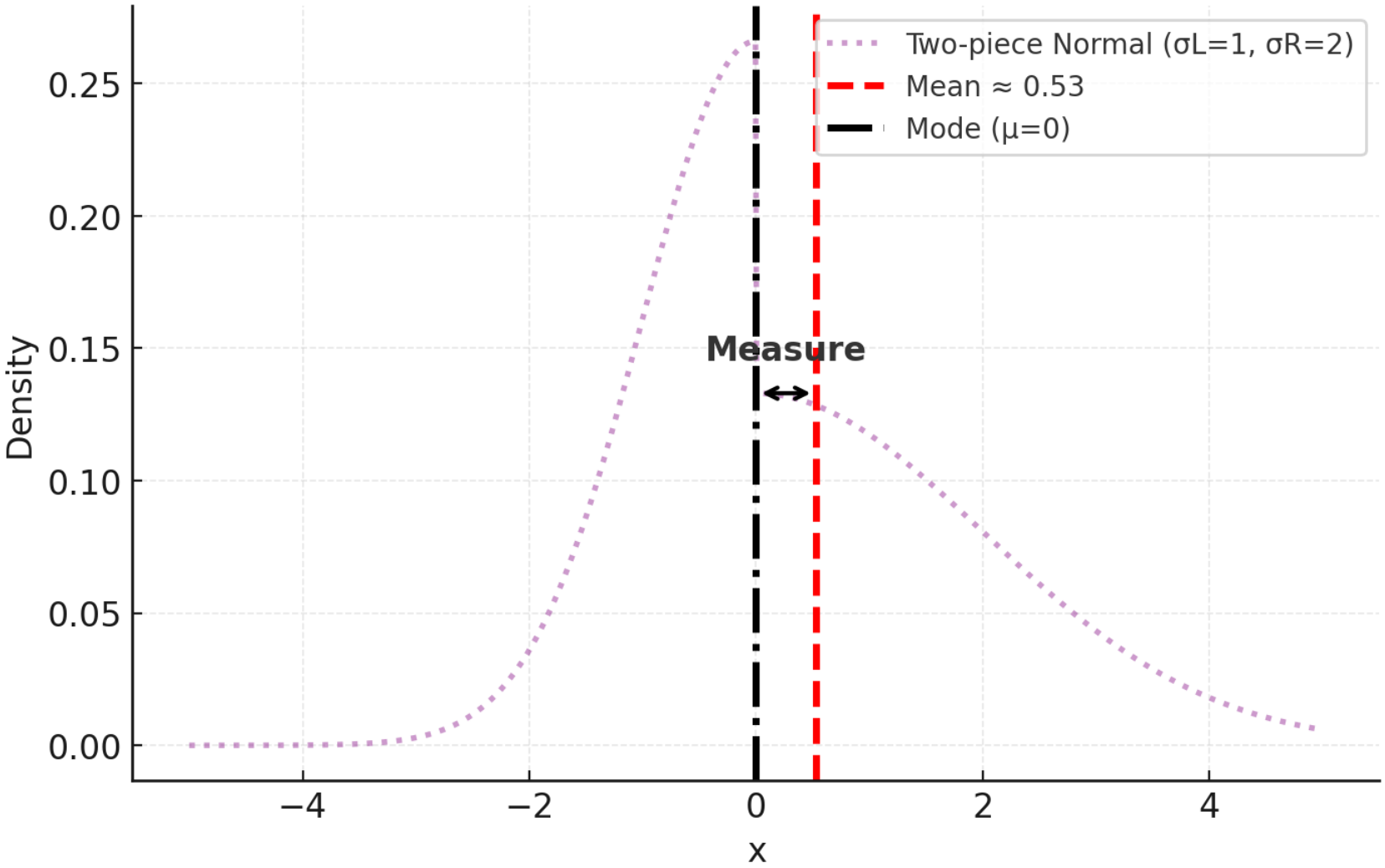
Main Concept of the Paper (III)

- But, the tail-risk of exogenous (mark-up) shocks is actually asymmetric
  - Shock is drawn from a two-piece normal distribution



Main Concept of the Paper (IV)

- Tractable methodology to handle the asymmetric risk of mark-up shocks
  - Focus on difference between mean and mode/median



Asymmetric risks and its beliefs representation

- Focus on how expectations are changing under this distribution
  - Expected changes in the asymmetry parameter of j period ahead shock affect equilibrium outcomes only through their impact on expected shocks
  - Revision in the asymmetry parameters leads to revisions in expectations
- Beliefs representation of the problem is equivalent in a first-order approximation
  - Model with asymmetric risks can be represented as one with symmetric, zero-mean shocks, augmented by additional beliefs shocks
  - In other words, add anticipated shocks and we can use standard solution methods (see e.g. Christiano, Motto and Rostagno (2014))

$\Rightarrow$ Very tractable way of incorporating asymmetric risk

$\Rightarrow$ Analysis of risk management and monetary policy

Optimal Monetary Policy and Risk-Adjusted MP Rule

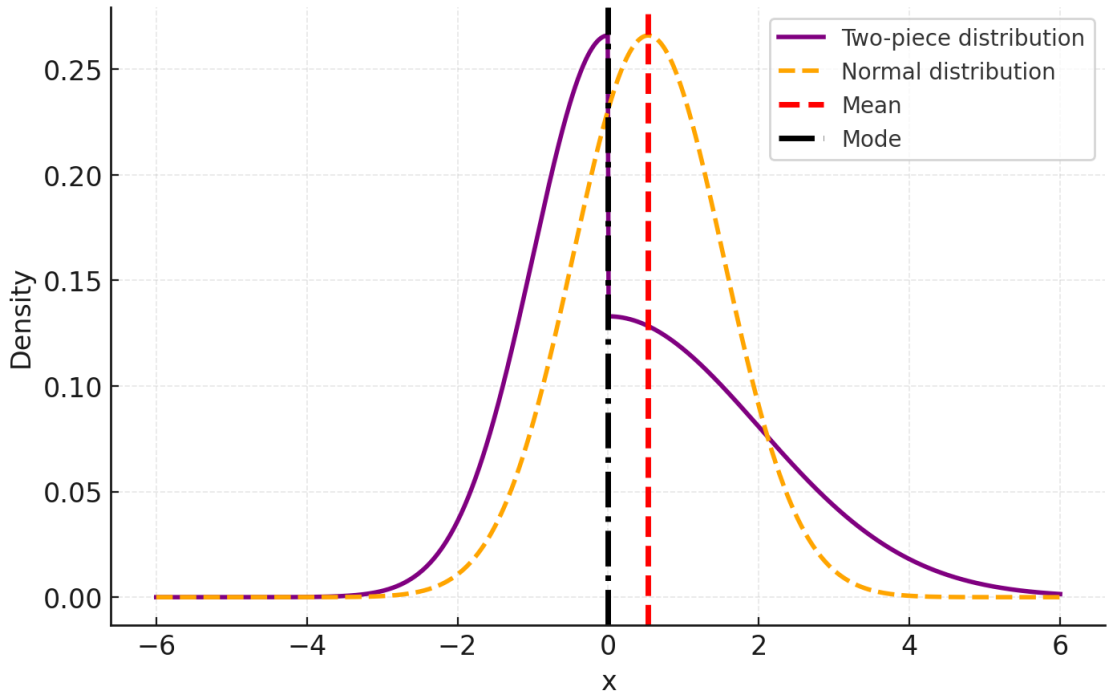
- Authors solve the optimal policy problem for a small-scale model
  - Asymmetric risk influences optimal policy as it changes expectations
- Authors suggest a policy rule that is adjusted for risk management considerations
  - Results in a different path than standard Taylor rule in a medium-scale model

$$\hat{r}_t = \rho \hat{r}_{t-1} + (1-\rho)\left[r_x \hat{x}_t + r_{\Delta x} \Delta \hat{x}_t + r_\pi \left(\hat{\pi}_t - \underbrace{\sum_{j=1}^{J} \hat{\pi}^{\star}_{t|t-j}}_{\hat{\pi}_t^{\text{RAIT}}} \right) \right] + \varepsilon_t^r,$$

- To what extent does this risk adjusted policy rule corresponds to optimal monetary policy?
  - What would come out of constrained optimal policy simulations (e.g., de Groot et al. (2021)?

Asymmetric risks vs beliefs

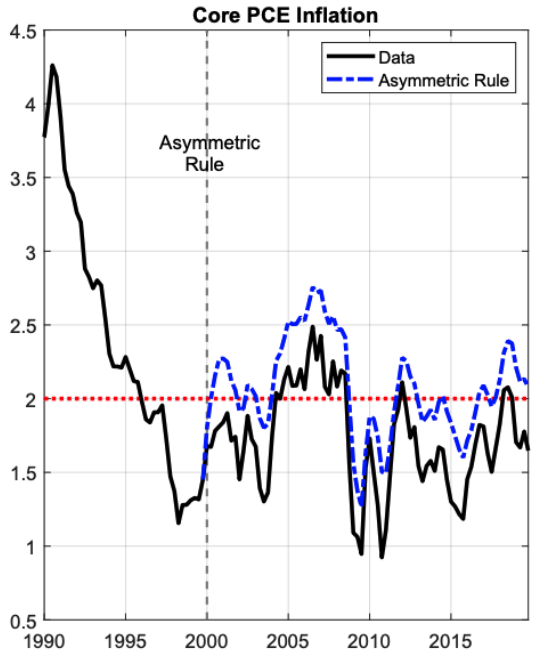
- Difference between asymmetric risks and anticipated shocks
  - Belief shock assumes that a positive shock is more likely, two-piece normal assumes equal likelihood

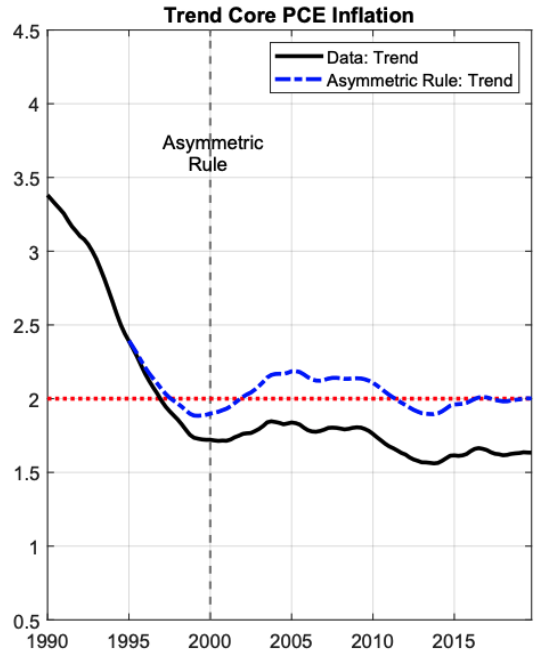


- Equivalence should approx. hold globally, as long as model is fairly linear
  - Holds for canonical nonlinear NK model, but what if there is a . . .
    - ZLB (Bianchi et al., 2021), endogenous financial crises (Rottner, 2023), nonlinear PC (Karadi et al., 2025), . . .

Exogenous versus Endogenous Risk

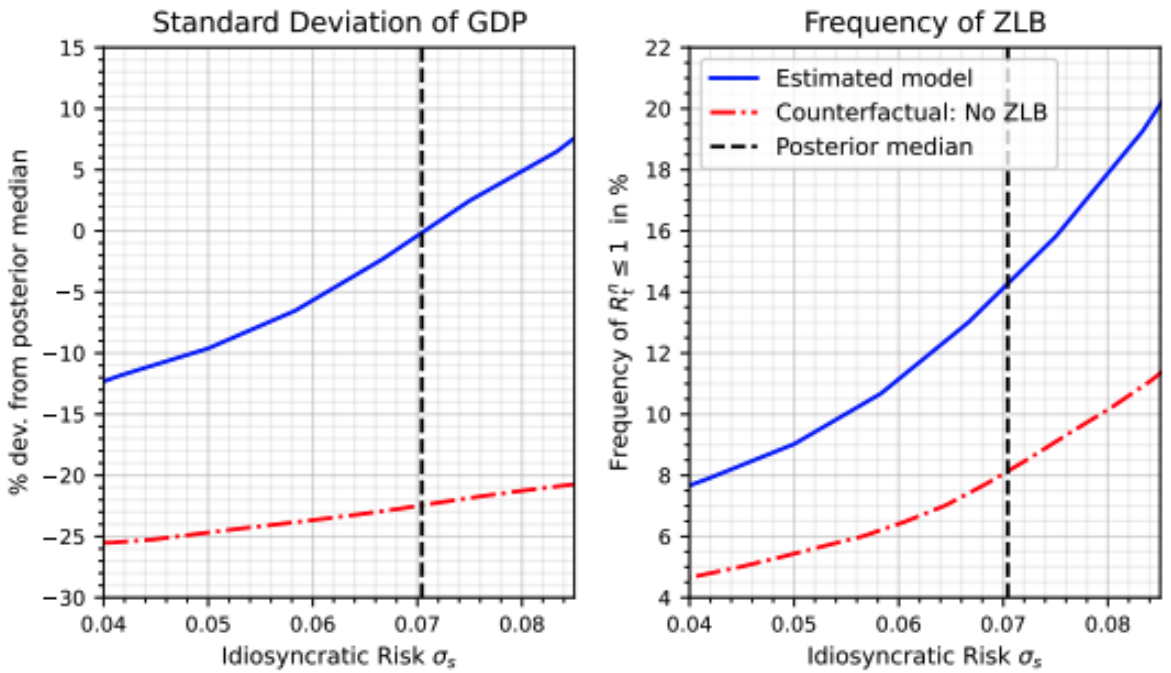
- Why is the balance of risk moving?
  1. Is the shock distribution changing exogenously?
  2. Underlying structural forces?
- Distinction is important to understand the dynamics and policy implications
  - E.g. the risk of the ZLB, price-setting behavior, supply chains, ...
- Asymmetric monetary policy can adjust inflation risk (Bianchi et al., 2021)
  - Optimal asymmetric rule differs for exogenous and endogenous risk





Solving & Estimating High-Dimensional Nonlinear Models

- Tractable approach should be complemented with structural models
  - But, this requires solving large and complex models
- Estimation of nonlinear HANK with neural networks (Kase et al., 2023)



- New approach: Generative Economic Modelling (Kase et al., 2025)
  - Hybrid approach that combines neural networks with conventional methods

Summary

- An exciting and highly relevant paper that helps to evaluate inflation risks
- Tractability is a great plus, very applicable for policy analysis
  - But, tractable approach should be complemented by structural models
- Provides guidance on monetary policy and the role of risk management
  - Offers an optimal view of monetary policy and a risk-adjusted rule