Discussion of Andrei-Hasler "Can the Fed Control Inflation? Stock Market Implications"

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Adam Smith Workshop
London, April 2024

This Paper

- How perceived CB's ability to control inflation affect asset prices and returns?
- Propose equilibrium model where agents learn about time-varying CB's ability to control inflation
- CB tightens during booms and eases during recessions
- Stabilizing force $\Rightarrow$ lower risk premium
- If perceived CB's ability to stabilize is reduced
  - Such stabilizing force is gone
  - Higher risk premium
- Asymmetries: higher risk premium during tightening

Outline of my discussion

- Context with macro/monetary literature
  - Credibility vs. controllability
- Mechanics of the model
  - Monetary policy $\Rightarrow$ consumption growth $\Rightarrow$ SDF $\Rightarrow$ risk premium
  - Source of “monetary” non-neutrality
  - How is output determined?
- Policy vs. shocks to the economy
  - Identification/distinguishing
  - Does it matter?

Context

Macro/monetary literature studies how much CB tolerate inflation

- Clarida-Gali-Gertler

Suppose CB policy described by a Taylor rule

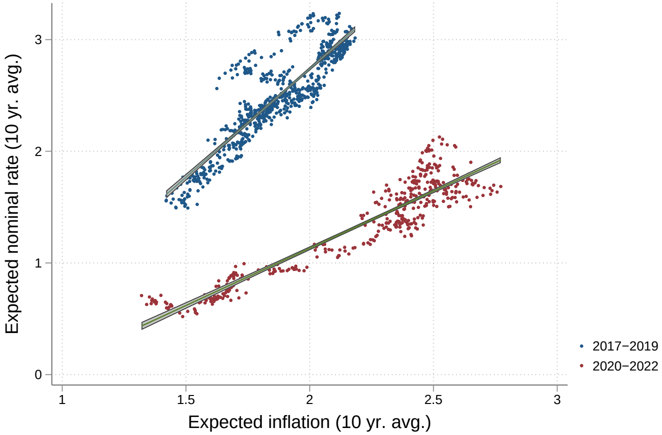
$$1 + i_t = (1 + i_t^*) \left(\frac{1 + \pi_t}{1 + \pi_t^*} \right)^{\psi_{\pi,t}} \left(\frac{y_t}{y_t^*} \right)^{\psi_{y,t}} \epsilon_{mt}$$

How $\psi_{\pi,t}$ (or $\psi_{y,t}$) evolve over time?

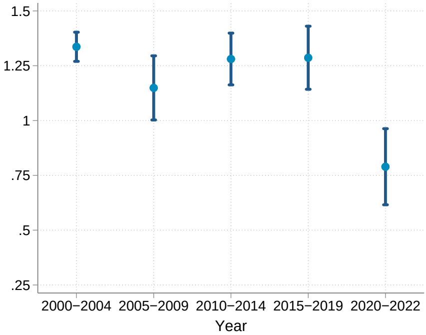
- Bauer-Pflueger-Sunderam (mostly $\psi_{y,t}$)
- King-Lu
- Bocola-Dovis-Kirpalani-Jorgensen (BDKJ)

BDKJ: Bond markets view of the Fed

Use info in bond prices to estimate *changes* in $\psi_{\pi,t}$ over time

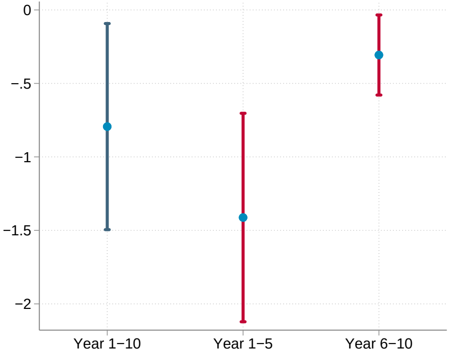


Estimate of $\psi_{\pi,t}$ over time



- ψ_π stable between 2000-2019
- Drops significantly in 2020-2022
- Consistent with Fed strategy review

$\Delta\psi_\pi$: Short vs long-run expectations



- Evidence stronger for shorter maturities
- Consistent with the policy shift being perceived as transitory

This paper

- Not variation in ψ_π
  - How much CB tolerate inflation
- But ability to control inflation
- Joint feature of
  - Fed's capabilities
  - Economy's transmission mechanism
- Not CB's preferences

Mechanics of the model

How does monetary policy affect consumption growth?

- Monetary policy $\Rightarrow$ consumption growth $\Rightarrow$ SDF $\Rightarrow$ risk premium
- Source of "monetary" non-neutrality
- How is output determined?

Model building blocks

Equilibrium outcome $\{i_t, \pi_t, c_t\}$

- Taylor rule

$$1 + i_t = (1 + i^*) \left(\frac{1 + \pi_t}{1 + \pi_t^*} \right)^{\psi_\pi} \left(\frac{y_t}{y_t^*} \right)^{\psi_y} \epsilon_{mt}$$

- Euler equation (paper has EZ preferences)

$$\frac{1}{1 + i_t} = \mathbb{E}_t \left[\left(\beta \frac{c_{t+1}}{c_t} \right)^{-\sigma} \frac{1}{1 + \pi_{t+1}} \right]$$

- **Need theory of output determination:** $c_t = y_t$

- Asset prices: given real dividends $\{D_{t+1}\}$

$$q_t = \mathbb{E}_t \left[\left(\beta \frac{c_{t+1}}{c_t} \right)^{-\sigma} (D_{t+1} + q_{t+1}) \right]$$

  - No feedback from policy and $\{y_t\}$ to $\{D_t\}$ only discounting

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- Standard theory of output determination: $c_t = y_t$
  - Pure-exchange economy: y_t exogenous
  - Flex-price: y_t such that $v'(y_t) = y_t^{-\sigma}$
  - New Keynesian:

$$\pi_t = \kappa(y_t - y_t^*) + \mathbb{E}_t \left[\left(\beta \frac{c_{t+1}}{c_t} \right)^{-\sigma} \pi_{t+1} \right]$$

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- This paper "supply-side" of the economy:

$$1 + \pi_t = \left(\frac{1 + i_t}{1 + i_t^*} \right)^{-(1-\lambda_a) a_t} (1 + \pi_{t-1})^{\lambda_a} \epsilon_{\pi t}$$

  - More complicated lag structure in paper

Mechanical logic

$$1 + \pi_t = \left(\frac{1 + i_t}{1 + i_t^*}\right)^{-(1-\lambda_a)a_t} (1 + \pi_{t-1})^{\lambda_a} \epsilon_{\pi t}$$

- If $i_t > i_t^* \Rightarrow$ inflation goes down
- Ability to affect/control inflation is increasing in a_t
  - If $a_t = 0$ then CB cannot control inflation that is exogenous
- $a_t \downarrow$ then higher inflation volatility and more uncorrelated with fundamentals and policy stance

Mechanical logic

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- Learning:
  - $\{a_t\}$ is unobserved random variable
  - Investors learn about it by observing $\{i_t, \pi_t, y_t\}$

Output determination: $\{i_t, \pi_t, c_t\}$

- Equilibrium conditions

$$1 + i_t = (1 + i_t^*) \left(\frac{1 + \pi_t}{1 + \pi_t^*} \right)^{\psi_\pi} \left(\frac{y_t}{y_t^*} \right)^{\psi_y} \epsilon_{mt}$$

$$\frac{1}{1 + i_t} = \mathbb{E}_t \left[\left(\beta \frac{c_{t+1}}{c_t} \right)^{-\sigma} \frac{1}{1 + \pi_{t+1}} \right]$$

$$1 + \pi_t = \left(\frac{1 + i_t}{1 + i_t^*} \right)^{-(1-\lambda_a) a_t} (1 + \pi_{t-1})^{\lambda_a} \epsilon_{\pi t}$$

with

$$\frac{c_{t+1}}{c_t} = \mu_{gt} + \gamma_{t+1} \text{where } \gamma_t \text{is random variable}$$

- Use equilibrium conditions to determine μ_{gt}
- a_t only affects first moment of c_{t+1}/c_t, not higher moments
  - Consistent with Alvarez-Atkeson-Kehoe, Canzoneri-Diba?

My suggestion

- Need to better flesh-out the "supply-side" of the economy
- Justification for

$$1 + \pi_t = \left(\frac{1 + i_t}{1 + i_t^*} \right)^{-(1-\lambda_a) a_t} (1 + \pi_{t-1})^{\lambda_a} \epsilon_{\pi t}$$

- E.g. $\downarrow a_t$ related to higher variance of money-demand
  - Harder for CB to fine tune interest rate to control π_t
  - But how it translates to real economy?
- Can work with conventional Phillips curve?

Learning vs. time-variation in a_t

- Does it matter that a_t is not observable?

- Suppose a_t is observable
  - Feed in same realization i.e. $a_t = \hat{a}_t$
  - How different is equilibrium outcome?
  - Quantify role of time-varying uncertainty about a_t (posterior mean vs. its variance)

What identifies Fed's perceived ability?

If $i_t > i_t^*$

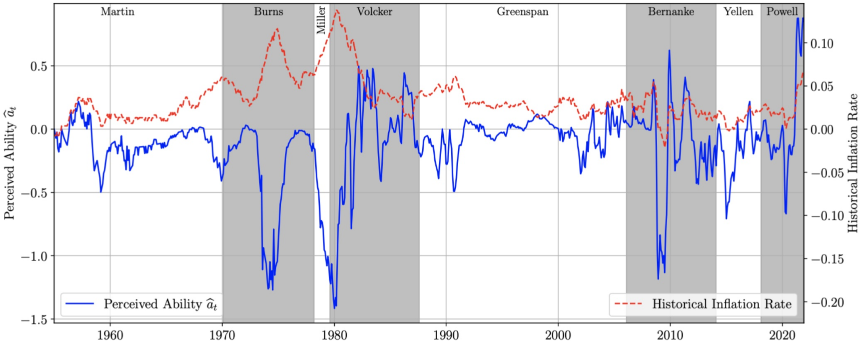
- π_t stays high $\Rightarrow a_t \downarrow$
- π_t goes down $\Rightarrow a_t \uparrow$

If $i_t < i_t^*$

- π_t doesn't go up $\Rightarrow a_t \downarrow$
- π_t goes up $\Rightarrow a_t \uparrow$

Size of the tightening/easing carries no information

What identifies Fed's perceived ability?



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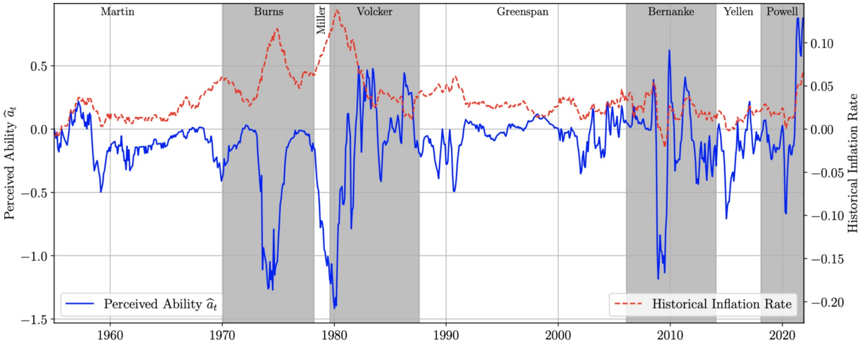

- Volcker: initially tightening with little effect of inflation the $a_t \downarrow$
- Later inflation reduced $\Rightarrow a_t \uparrow$

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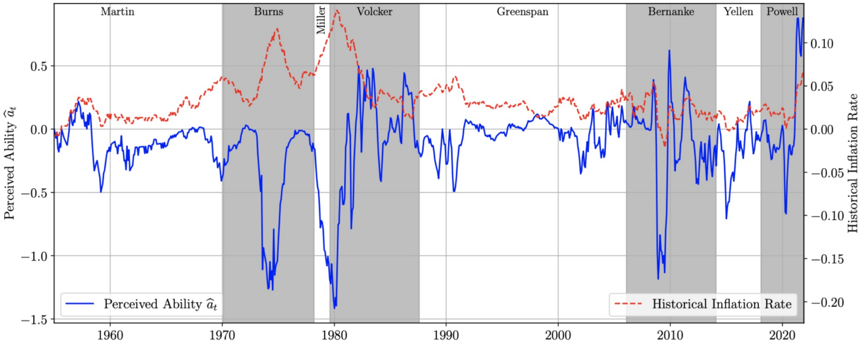
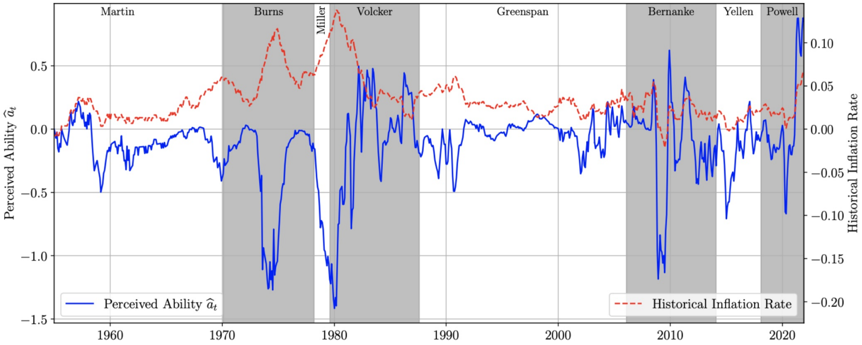


- 2008 financial crisis: easing but little inflation $\Rightarrow a_t \downarrow$

What identifies Fed's perceived ability?



- Is increase in perceived a_t at end of sample because reduction in i_t in 2020 was effective?
- Can do analysis post 2022?

CB ability vs. structural shocks

- Does time-varying a_t reflect changes in Fed ability to control inflation rather than structural shocks?

- For example, larger contribution of markup shocks

$$\pi_t = \kappa(y_t - y_t^*) + \mathbb{E}_t\left[\left(\beta\frac{c_{t+1}}{c_t}\right)^{-\sigma}\pi_{t+1}\right] + \epsilon_{\mu,t}$$

  - If $\uparrow \mathrm{Var}(\epsilon_{\mu,t})$
  - Looser relation between i_t and π_t as if $a_t \downarrow$
  - Can generate larger risk-premium on nominal assets

CB ability vs. structural shocks, cont.

- Joint dynamics of $\{i_t, \pi_t, y_t\}$ may help to disentangle
  - $a_t \downarrow$ when $i_t > i_t^*$ but π_t stays high
- But same pattern can emerge with $\uparrow \text{Var}(\epsilon_{\mu,t})$ and positive realization of $\epsilon_{\mu,t}$
- Need more explanation about identification
- But maybe it is what you want: a theory for model's "supply-side"

Conclusion

- Interesting paper on effect of perceived CB ability to control inflation on risk premium

- Need better justification/intuition for how output is determined in equilibrium

- Clarify if controllability is CB's ability/skill or feature of the economy