Monetary Policy and Asset Price Overshooting: A Rationale for the Wall/Main Street Disconnect

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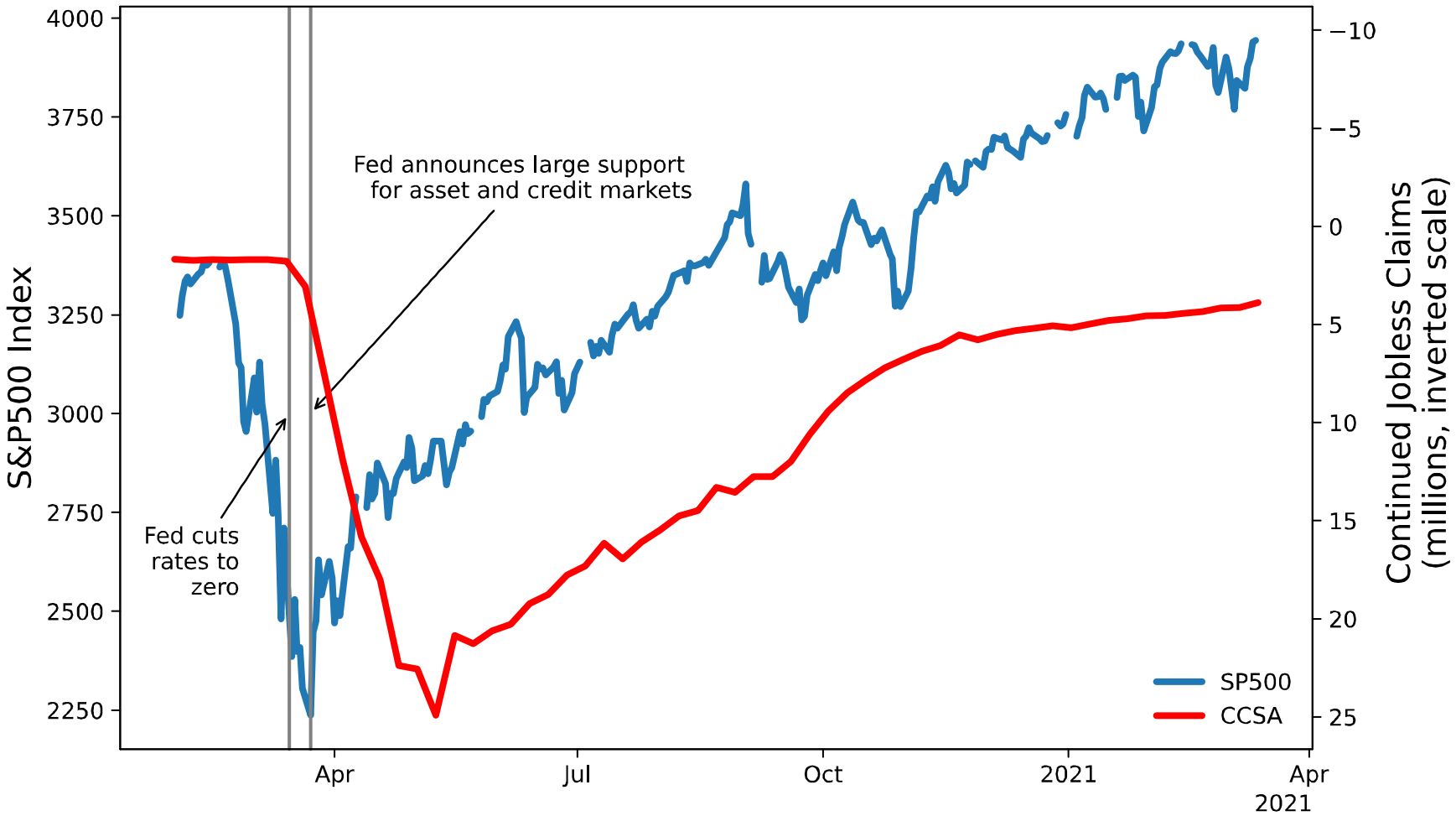
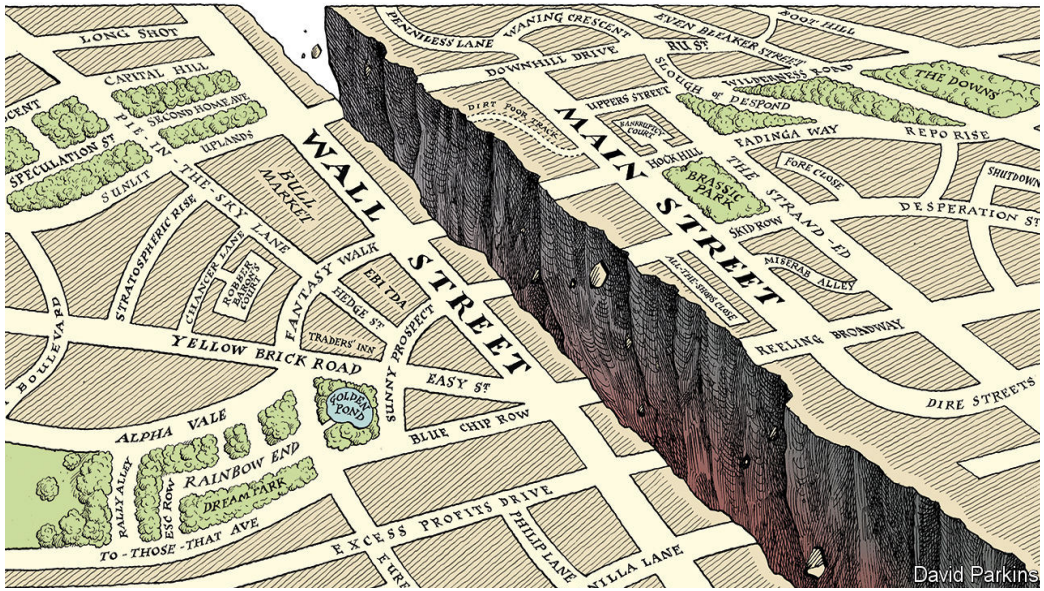
Post-Covid shock: Wall Street/Main Street disconnect



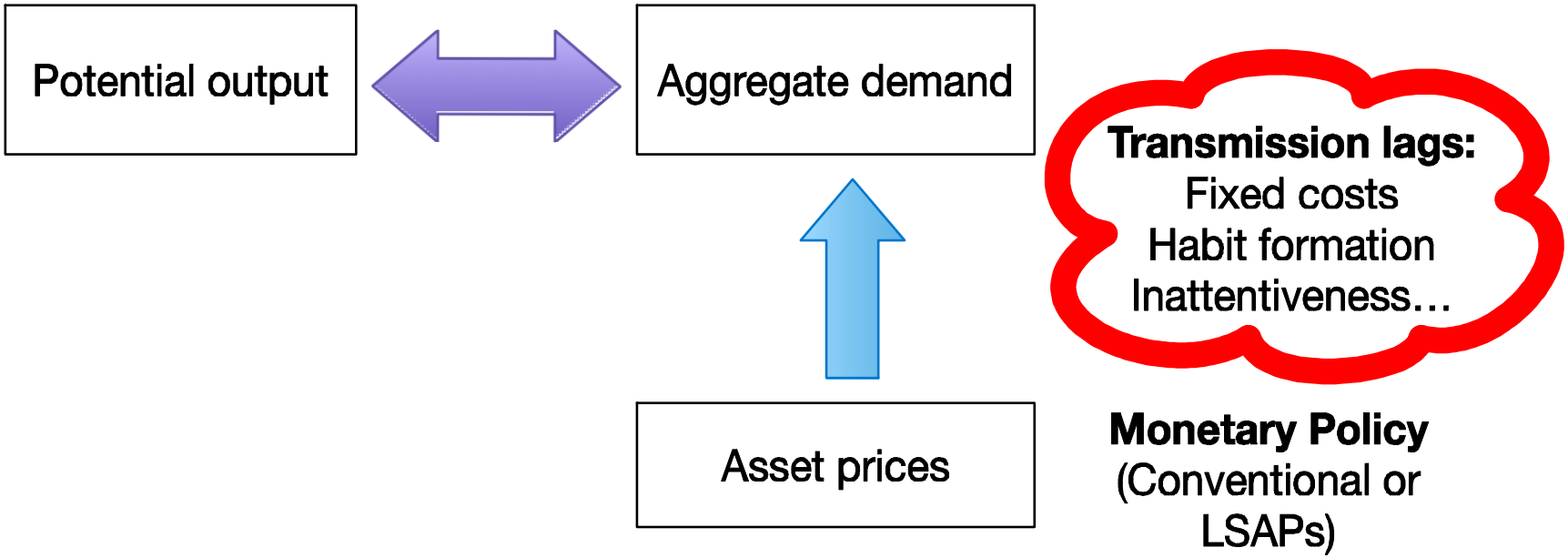
Cover page of the Economist on May 9, 2020, "A dangerous gap..."



This paper:

1. Optimal monetary policy with **transmission lags**
   - Policy **overshoots** asset prices to close gaps. **Temporary disconnect**
2. Method to quantify policy-induced overshooting, applied to Covid-19 (similar to van Binsbergen (2020), Knox&Vissing-Jorgensen (2021))
3. Constrained overshooting: Cyclicality of price response to macro news

Key friction: Asset prices affect output with lags



Chairman Powell (2020): "monetary policy must be forward looking, taking into account... the lags in its effect on the economy" ▸ wealth effect lags

Roadmap

1. Asset price overshooting and disconnect

2. Quantifying the asset price overshooting in the Covid-19 recession

Goods market: Spending responds sluggishly to wealth

- Continuous time NK model with fully sticky goods prices (relaxed)

$$y(t) = c^s(t)$$

- At each t, **only a fraction of "stockholders" adjust**. Hazard rate θ

$$\dot{c}^s(t) = \theta\left(c^{s,adjust}(t) - c^s(t)\right)$$

- Adjusters' spending depends on the aggregate asset price (log utility)

$$c^{s,adjust}(t) = mp(t) + ny(t)$$

$\Longrightarrow$ **Asset prices affect output, but with lags:**

$$\dot{y}(t) = \theta\left(mp(t) + ny(t) - y(t)\right)$$

Monetary policy: Fed closes output & asset price gaps

- No uncertainty, $r^f(t) = r(t)$. Fed "sets" return on aggregate asset

$$r(t) = \frac{\rho}{1+\rho}(y(t) - p(t)) + \frac{1}{1+\rho}\dot{p}(t)$$

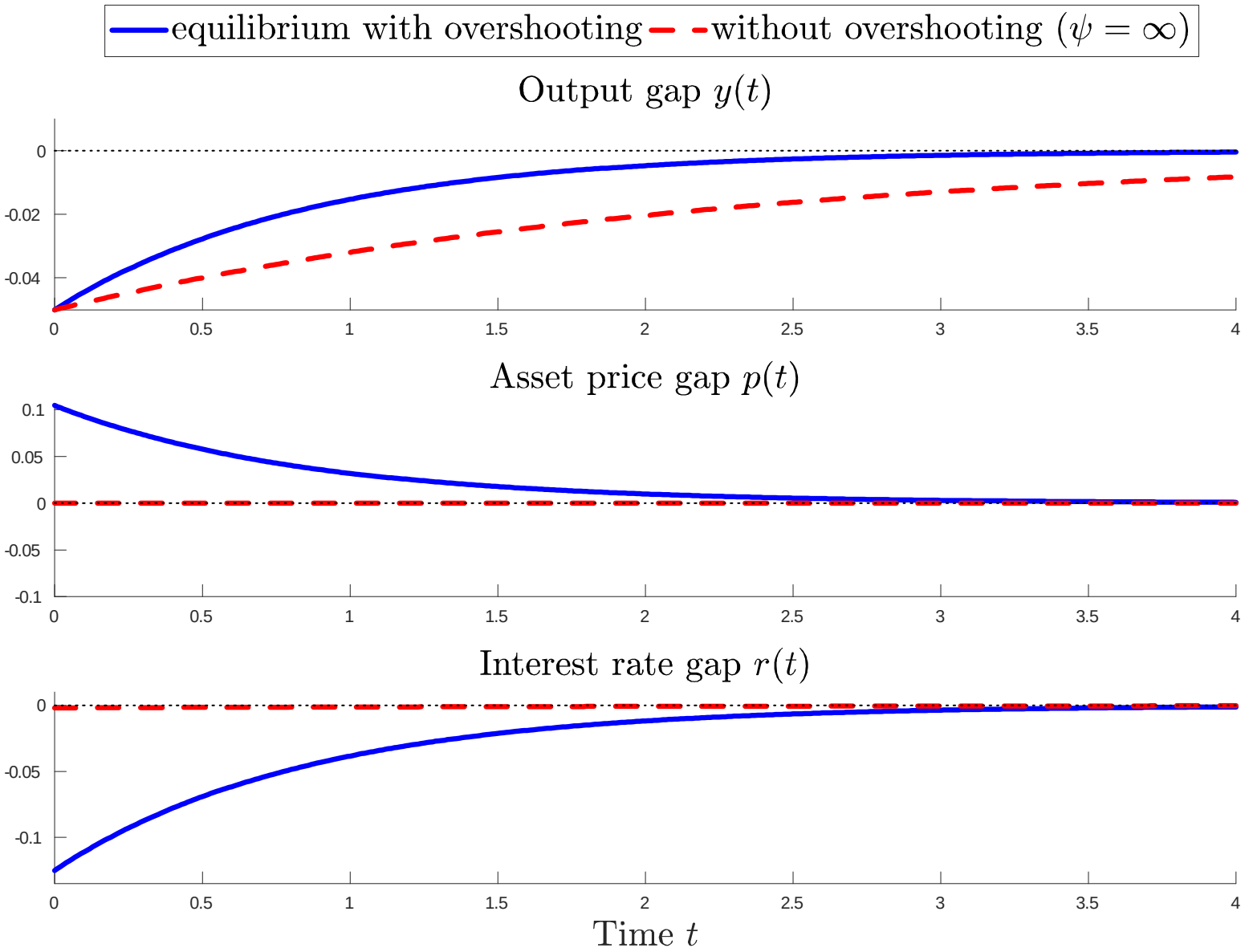
- Fed "sets" $p(t)$ with implied $r(t)$ to minimize the discounted sum of

$$\frac{y(t)^2}{2} + \underbrace{\psi\frac{p(t)^2}{2}}_{\text{aversion to overshooting asset prices}}$$

$\Longrightarrow$ **Fed controls asset prices to close gaps, subject to lags**

$$\begin{aligned}\rho V(y) &= \max_p -\frac{y^2}{2} - \psi\frac{p^2}{2} + V'(y)\dot{y} \\ \dot{y} &= \theta(mp - (1-n)y)\end{aligned}$$

Main result: Negative output gap => Overshooting



Main result holds in various extensions

Time-varying risk premium:

- Planner controls $r(t) = r^f(t) + \xi(t)$, where $\xi(t)$ is risk premium
- Countercyclical premium: More aggressive $r^f(t)$ response to gaps

Endogenous inflation (in paper):

- Disinflationary pressures induce the CB to overshoot by more
- (Some) **overshooting is implied by Taylor-type policy rules**

Preemptive overshooting (in appendix):

- **Anticipated** future gaps, e.g., **temporary** supply recession (Covid)
- **Preemptively** boost asset prices to start recovery with a smaller gap

Roadmap

1. Asset price overshooting and disconnect

2. Quantifying the asset price overshooting in the Covid-19 recession

Market-bond portfolio helps quantify overshooting

MB: Bond portfolio that matches **duration** of dividend strips of market

- Captures **direct** impact of monetary policy on asset prices

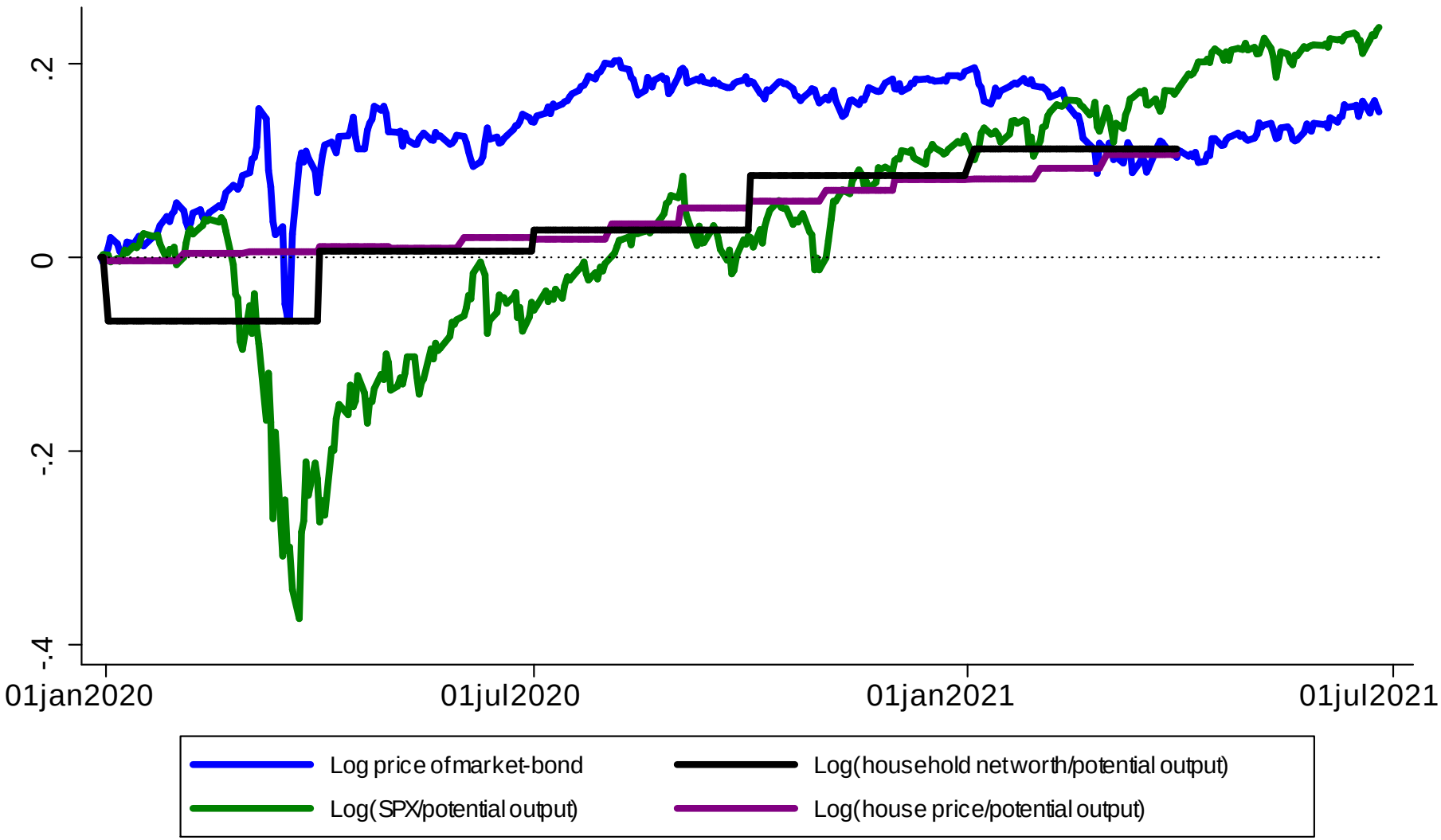
$$p(t) = \underbrace{p^{MB}(t)}_{\text{forward interest rates}} + \underbrace{p^{O}(t)}_{\text{cash flows/other}}$$

- Can be measured from **treasury (TIPS) yields or forwards**

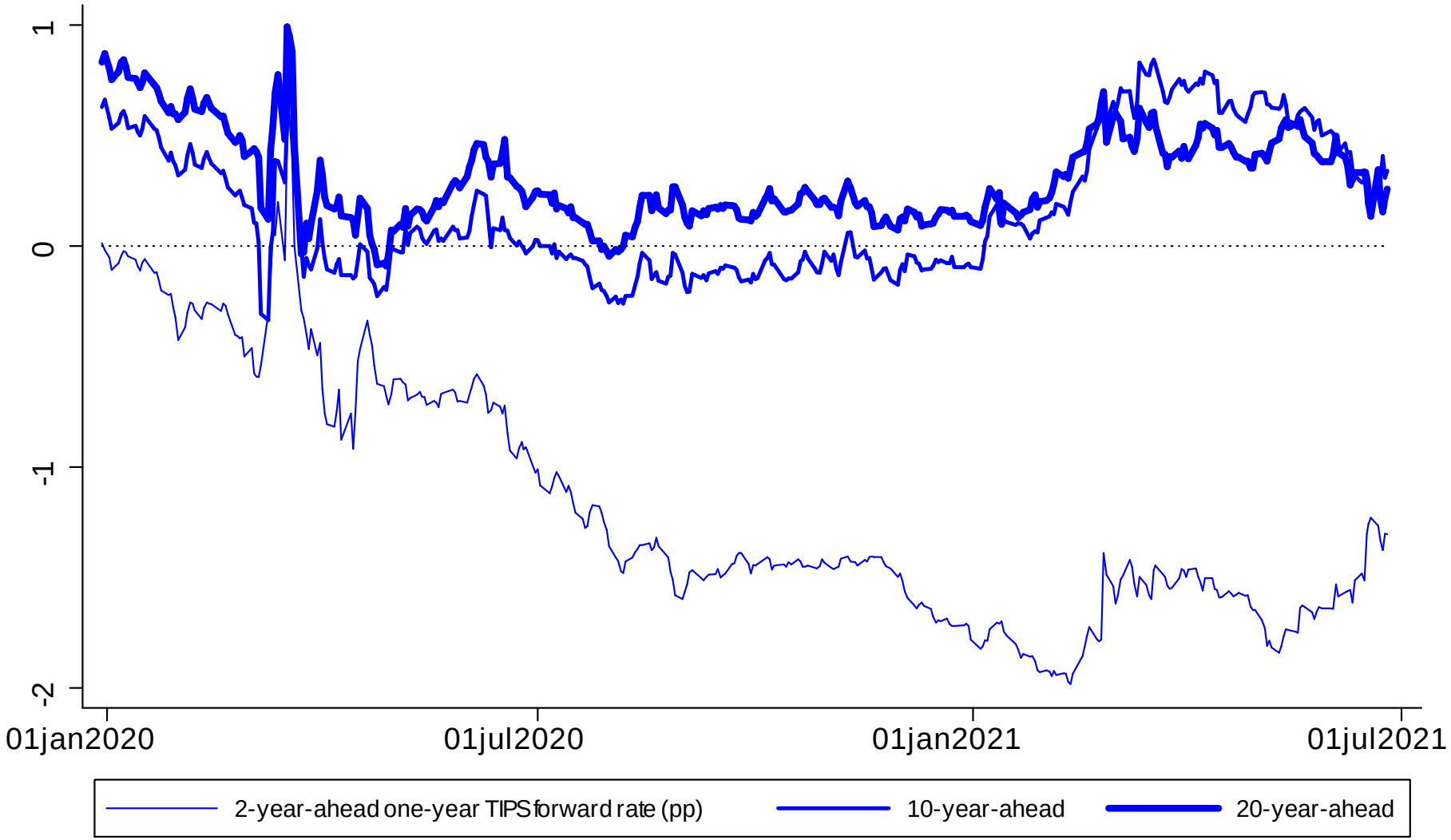
$$\begin{aligned}\dot{p}^{MB}(t) &= -\int_0^{\infty} w_\mu \mu \frac{\partial y(t,\mu)}{\partial t} d\mu \text{ where } w_\mu = e^{-\rho\mu}\rho \\ &= -\int_0^{\infty} W_\mu \frac{\partial f(t,\mu)}{\partial t} d\mu \text{ where } W_\mu = \int_\mu^{\infty} w_{\tilde{\mu}} d\tilde{\mu} = e^{-\rho\mu}\end{aligned}$$

We set $\rho = 0.03$ and bunch weights at $\overline{\mu} = 30$ (van Binsbergen (2020))

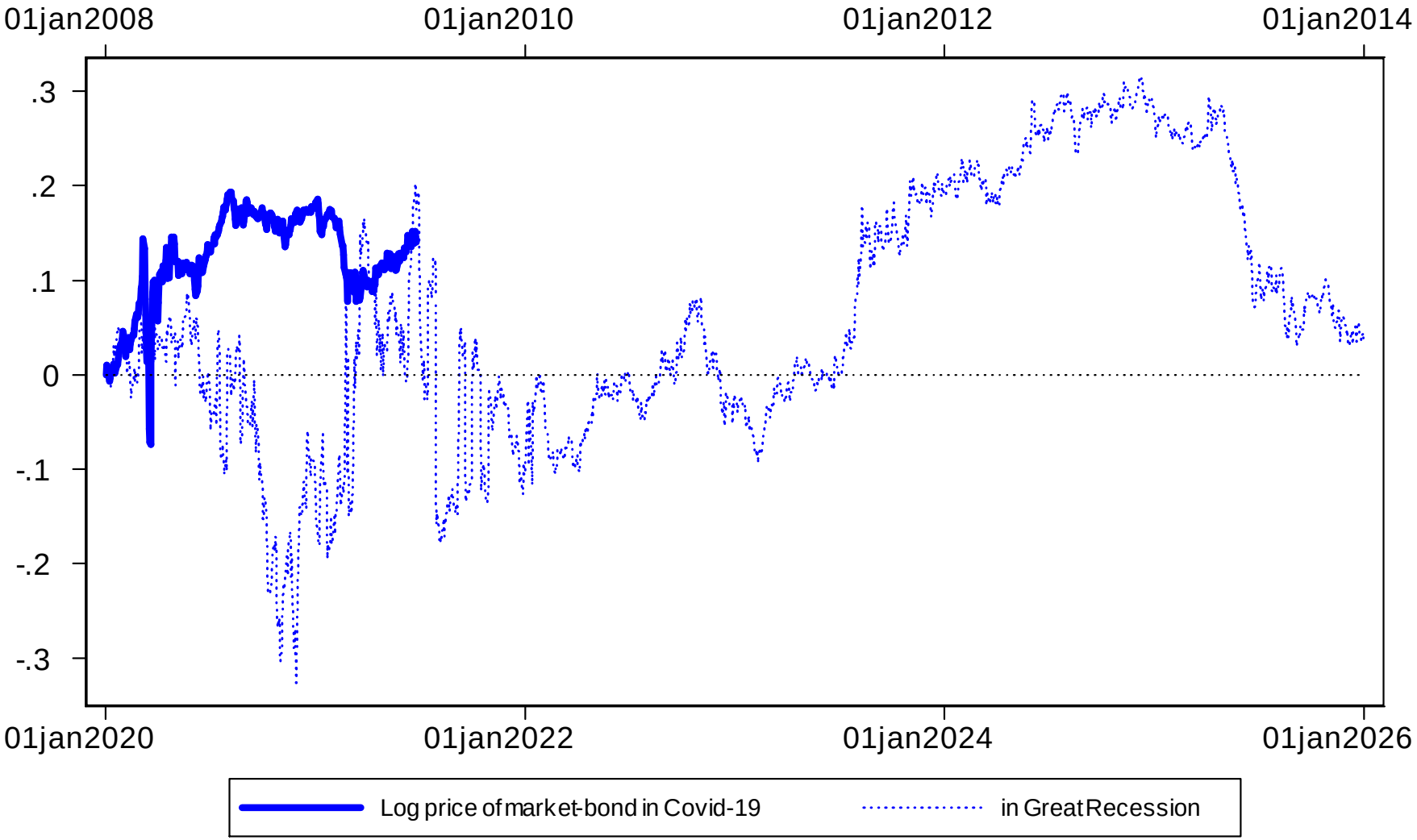
Overshooting in the Covid-19 recession has been large



Overshooting is partly driven by long-term forwards

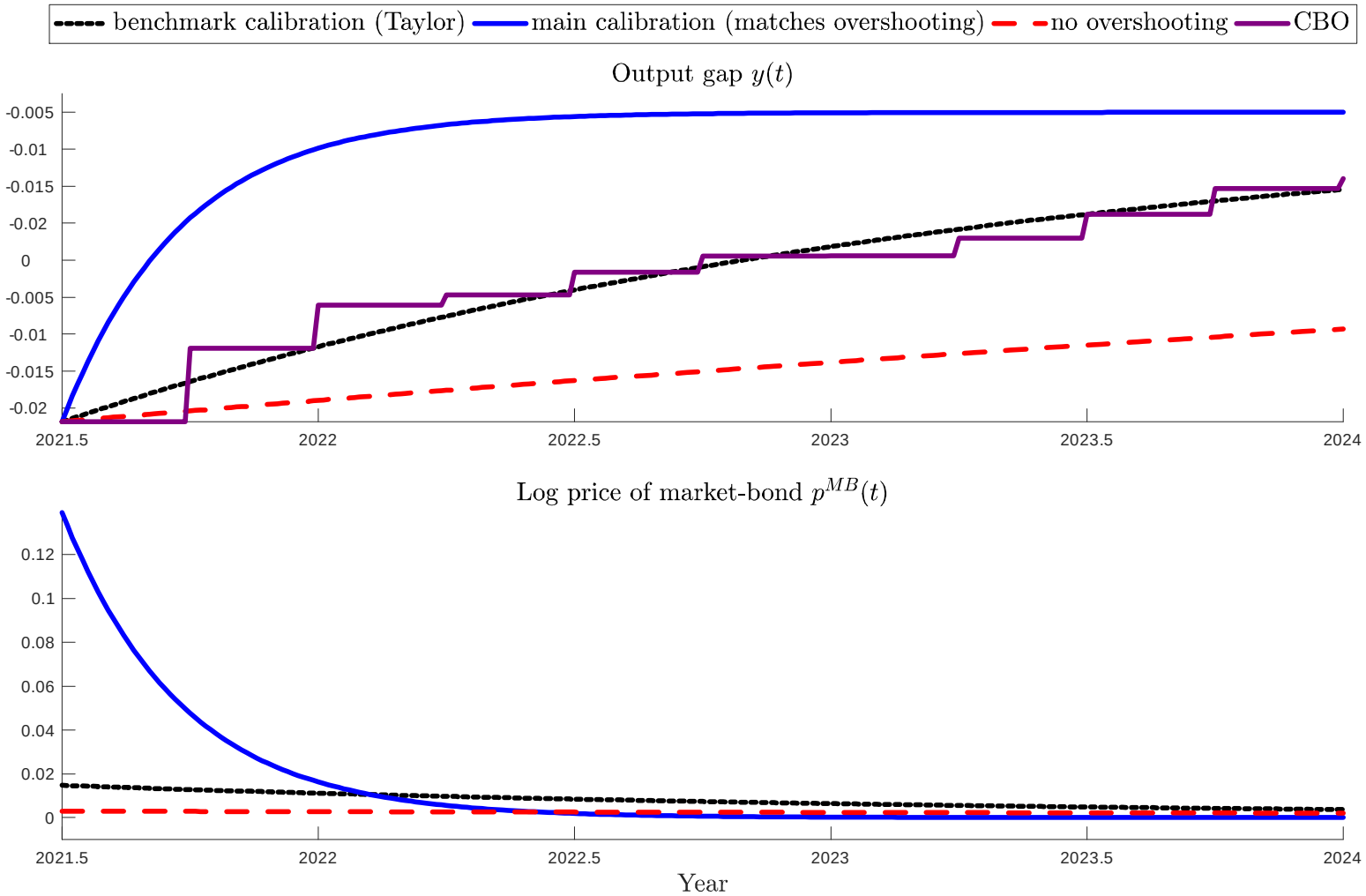


Overshooting was much faster than in the Great Recession

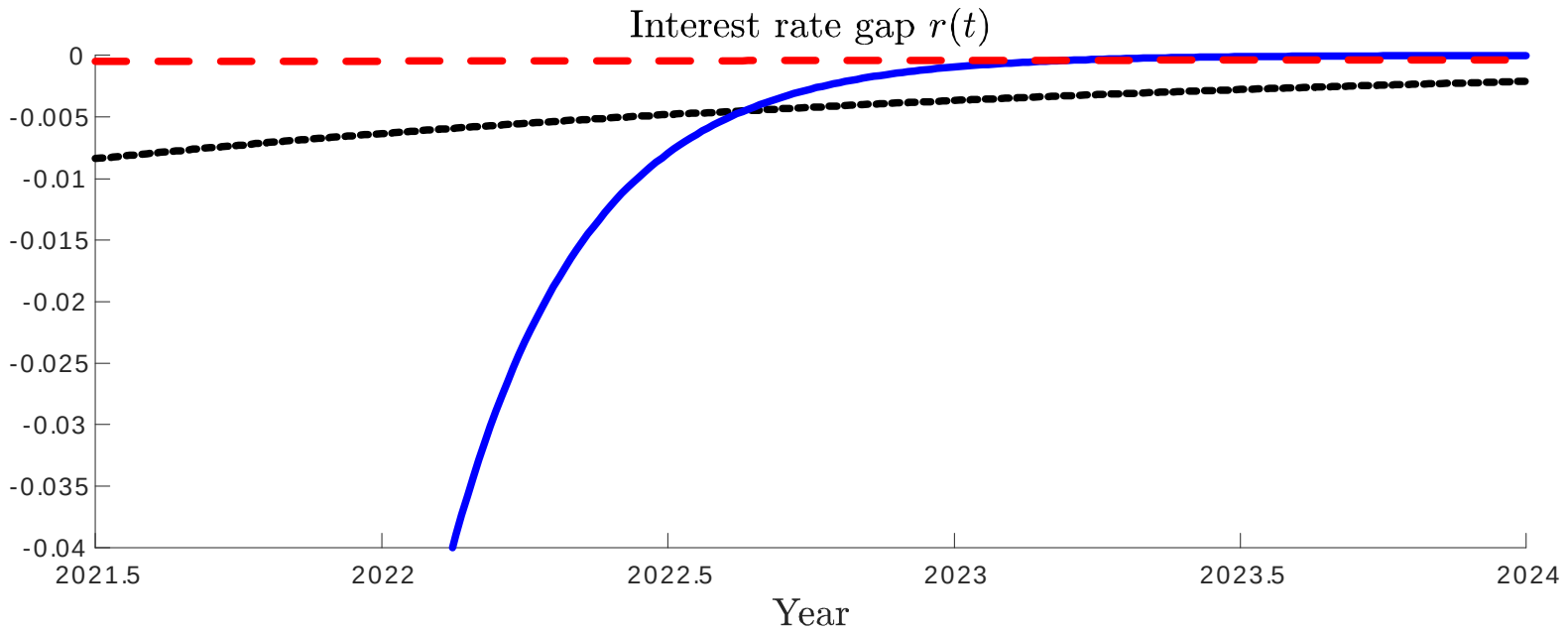


Calibration: Overshooting will accelerate the recovery

MPC is 3 cents. Average lag is 2 years (Chodorow-Reich et al. (2021))



LSAPs might have substituted for large rate cuts



LSAPs: Other frictions—risk absorption (CS (2021)), segmentation...

- Close substitute to rate cuts conditional on same impact on $p(t)$
- $p^{MB}(t)$ weight $\Longrightarrow$ Long-term yield cuts ~Large short rate cuts

Conclusion: Policy-induced overshooting and "disconnect"

With **transmission lags**, optimal policy **overshoots** asset prices

- Overshooting accelerates the recovery. Disconnect is temporary

Market-bond helps to quantify the policy-induced overshooting

In the Covid-19 recession, overshooting has been exceptionally large

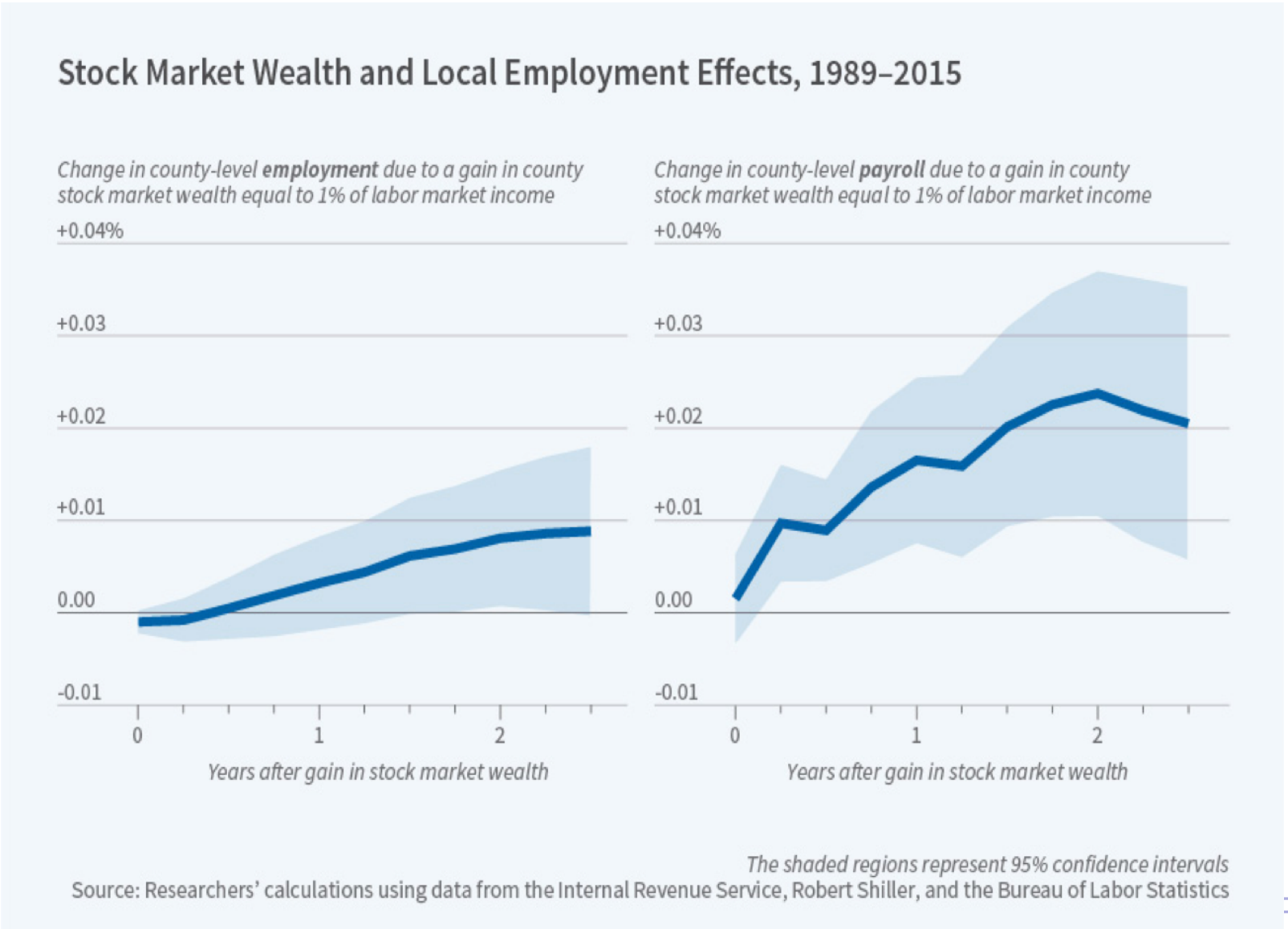
- Calibration: Induces fast recovery. Fed needs to taper soon!
- Driven in part by LSAPs that can substitute for large rate cuts

Constrained monetary policy: **Nonmonotonic overshooting**

- **Price impact of macro news** depends on stage of the recovery

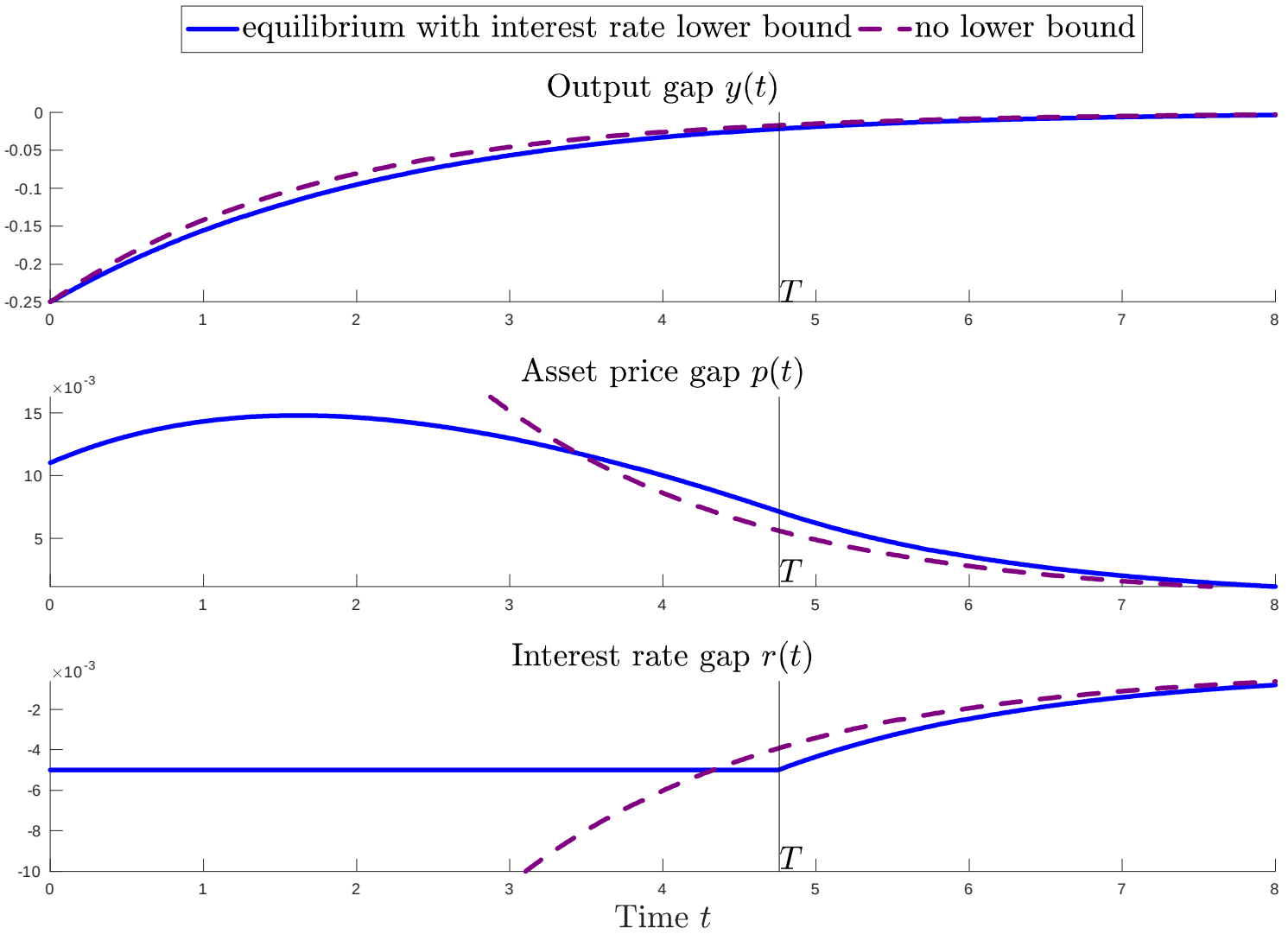
Stock market wealth effect holds but with lags

Chodorow-Reich, Nenov, Simsek (2021), NBER digest coverage

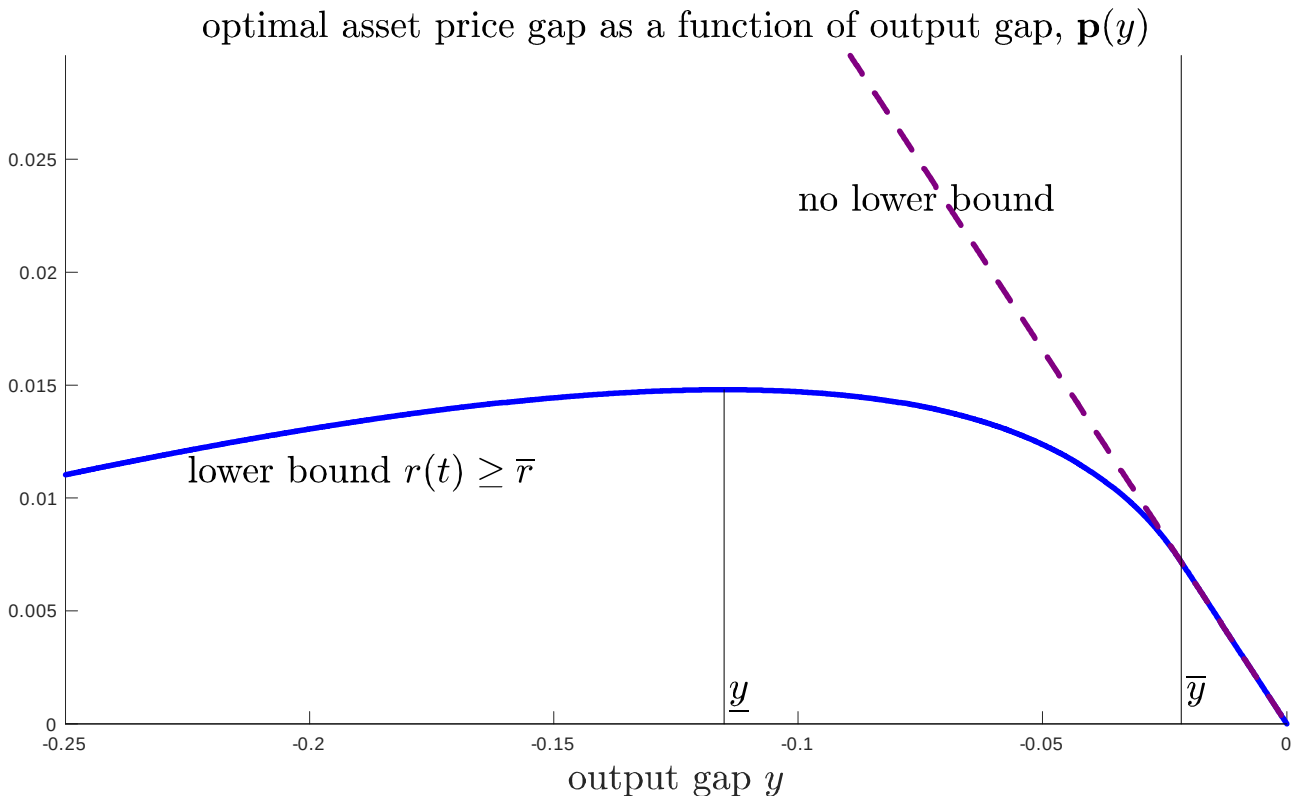


Constrained policy induces nonmonotonic overshooting

In other recessions, MP/LSAPs can be constrained. Consider $r(t) \geq \underline{r}$



Asset price response to news changes over the cycle



- $y(0) < \underline{y}$ (far from T) Good news are good news $\frac{dp(0)}{dy(0)} > 0$
- $y(0) > \underline{y}$ (near T) Good news are bad news $\frac{dp(0)}{dy(0)} < 0$
- Consistent with the evidence in Law, Song, Yaron (2020)