

RUNAWAY INFLATION RESULTING FROM SLUGGISH CENTRAL-BANK REACTION

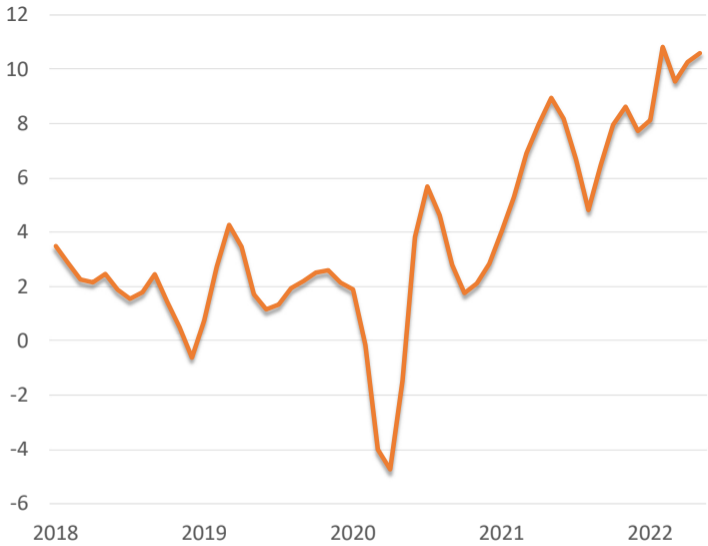
Festschrift Symposium Honoring Andy Abel

Robert E. Hall

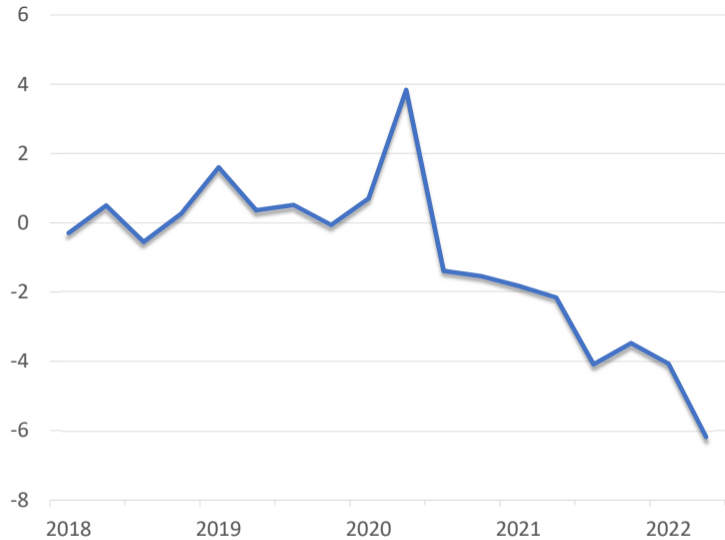
Wharton, October 15 and 16, 2022

THE US ECONOMY, 2018 THROUGH 2022

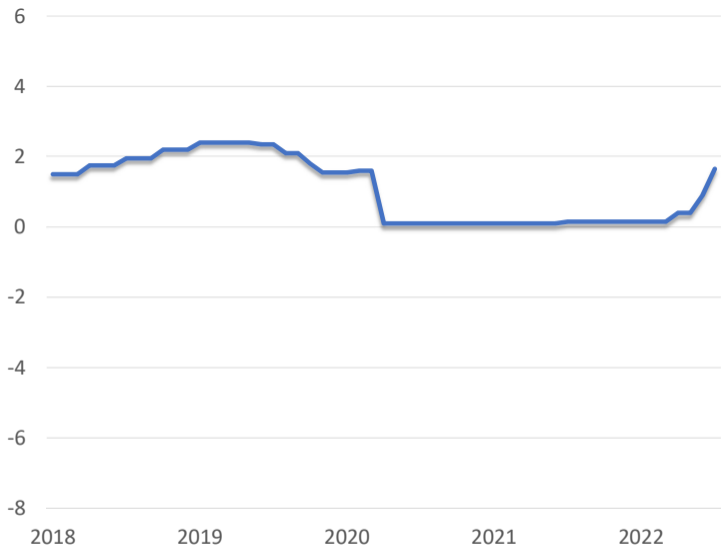
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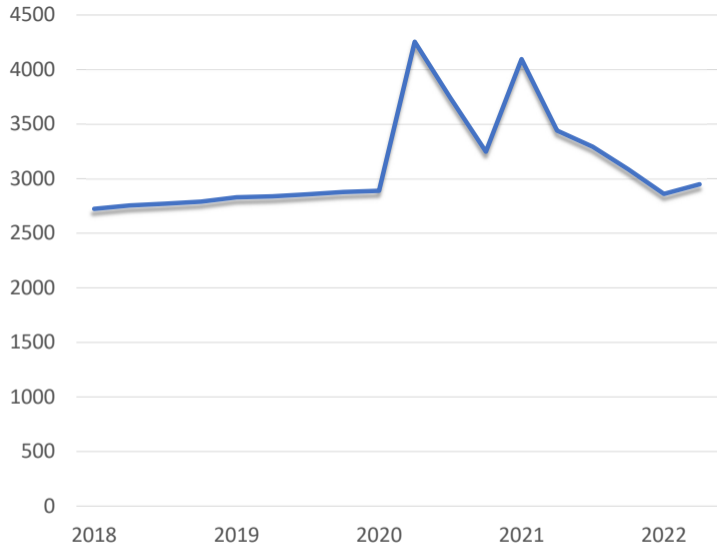
Inflation, π
BLS CPI



Short-term, Real, Safe Interest Rate, r ,
Cleveland Fed



Fed's Policy Interest Rate, b
Federal Reserve Board, IOER and IORB



Index of Real Government Spending, g
NIPAs, purchases plus transfers divided by CPI

BASIC PRINCIPLE OF PRICE DETERMINATION

Central bank issues a valuable class of securities called reserves

Price level is the reciprocal of the real purchasing power of a unit of reserves

Central bank sets a payment rate b and the market finds the value of a reserve held forever

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AN INFORMATIVE SPECIAL CASE

Real market value:

$$v(t) = \int_{\tau \geq t} \exp(-r \cdot (\tau - t)) b v(\tau) d\tau$$

Sargent and Wallace noted the indeterminacy of the level of $v(t)$, which can be interpreted as a constant of integration.

Given a value of that constant, taking the derivative with respect to t and dividing by $v(t)$ yields

$$\frac{\dot{v}}{v} = r - b,$$

so the rate of inflation is determinate and unchanging over time:

$$\pi = \frac{\dot{p}}{p} = b - r$$

UNEXPECTED REGIME CHANGE

Regime change is triggered by the decline in fiscal stimulus

Real rate r is lower in new regime; b is unchanged—monetary policy is sluggish

Price level is continuous at the moment of the regime change, but inflation rises discontinuously: $\pi = b - r$

THE ROLE OF THE REAL RATE OF INTEREST, r

From above, $\pi = b - r$

The conclusion that inflation depends negatively on the real interest rate dependence is harmonious with received thinking.

This conclusion is central to the conclusion about the mechanism of runaway inflation.

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COMPLIANCE WITH STRICT INFLATION TARGET, π^*

The central bank will pay a nominal rate of $b = \pi^* + r$ on reserves, if it adheres strictly to the inflation target.

INFORMAL GENERAL-EQUILIBRIUM ANALYSIS

Diagram with inflation π on the vertical axis and the real interest rate r on the horizontal axis

Passive monetary policy implies a downward-sloping line in the (r, π) space,

$$\pi = b - r$$

Denote this line as *reserve-market equilibrium*.

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REAL-ECONOMY EQUILIBRIUM

Trace out a line labeled *real-economy equilibrium*.

This line describes the determination of the real interest rate conditional on the rate of inflation

With nominal frictions, the two key variables lie along a non-vertical line, say

$$r = f(\pi, g).$$

Government spending, g , influences real-economy equilibrium

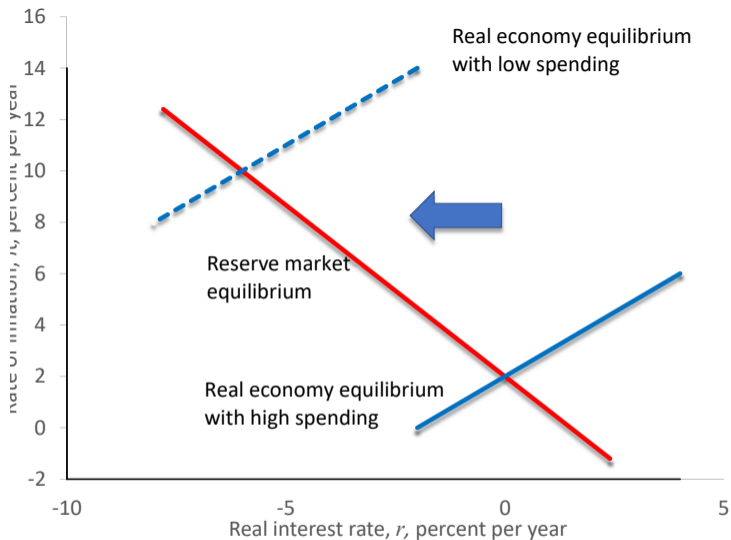
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PROPERTIES OF THE REAL-INTEREST FUNCTION

The sign of the response of r to π can have either sign, but the real economy line cuts the reserve-market line from below.

The response of r to government spending g is non-negative.

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Calibration to match 2019 and 2022 real interest rate and inflation under the hypothesis of stable rate paid on reserves and declining government spending

INTUITION

How does this explanation of runaway inflation succeed when the standard New Keynesian view fails?

NK assumes sticky inflation, and so cannot comprehend what happened

High flexibility of inflation permits extraordinary negative short-term real interest rate

Inflation is primarily a phenomenon of short-term asset markets enforcing $\pi = b - r$

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LESSON FOR MONETARY POLICY

It is both necessary and effective to change the policy rate instantly to head off inflation, by setting the rate to the current real rate in the money market.

Recent experience has shown that a sluggish response to inflation based on a philosophy of wait-and-see has disastrous practical consequences.

The “Taylor principle” of boosting the policy rate by 1.5 points for every point of excess inflation embodies this idea.

But Taylor rules generally impose gradual adjustment of the policy rate that can result in runaway inflation.