The Taylor rule

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Taylor rule in monetary economics

- New Keynesian model is leading business cycle model
- Taylor rule is one of three equations in the model
- Description of the Fed's behavior based on its dual mandate
- Persistent deviations from Taylor rule may be policy mistakes (e.g., in 2021-2)

Taylor rule in finance

- Widely used by asset managers today, especially in fixed income markets
  - fixed-income strategies are bets on future interest rates
  - successful strategies rely on risk premium:

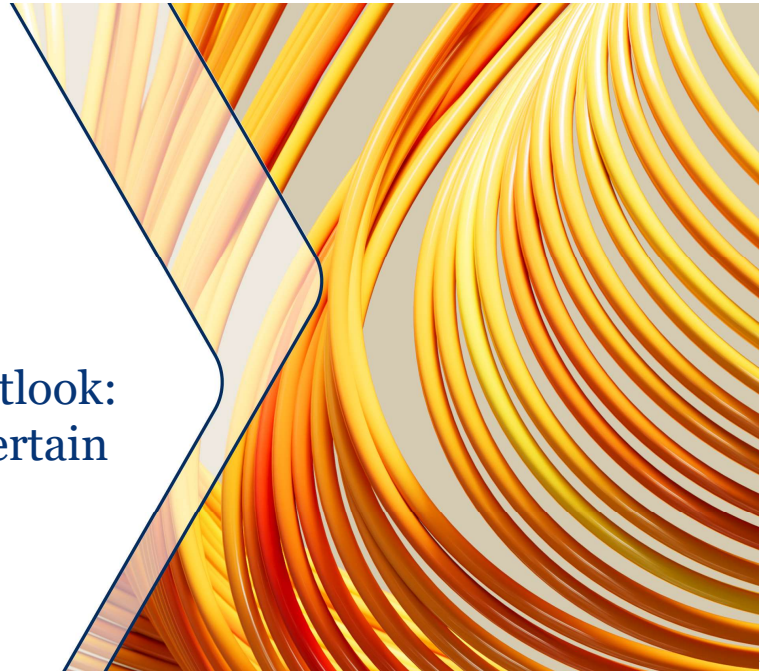
    expected returns on long bonds over the short rate
    = (time-varying) deviations from the expectations hypothesis
  - requires decompositions: expected future short rates + rest (premium)
- Taylor rule is useful to think about future short rates, including after long time at ZLB
- e.g., Pimco with $2 trillion of assets under management

PIMCO

CYCLICAL
OUTLOOK

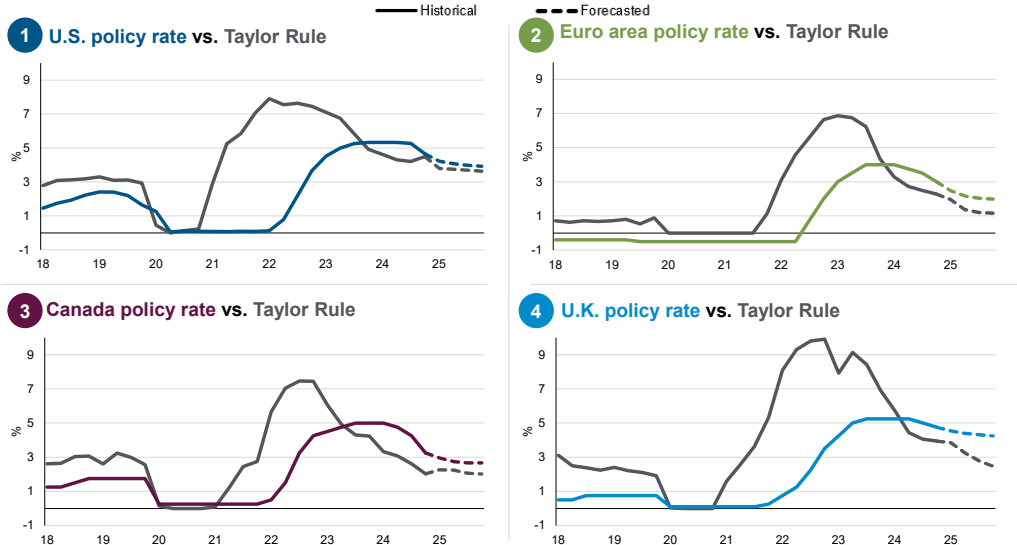
2025 Cyclical Outlook: Uncertainty Is Certain

January 2025



Rate cutting cycles

Monetary policy rate rules leave room for additional cuts



*Central bank rates are above levels implied by current inflation and unemployment**

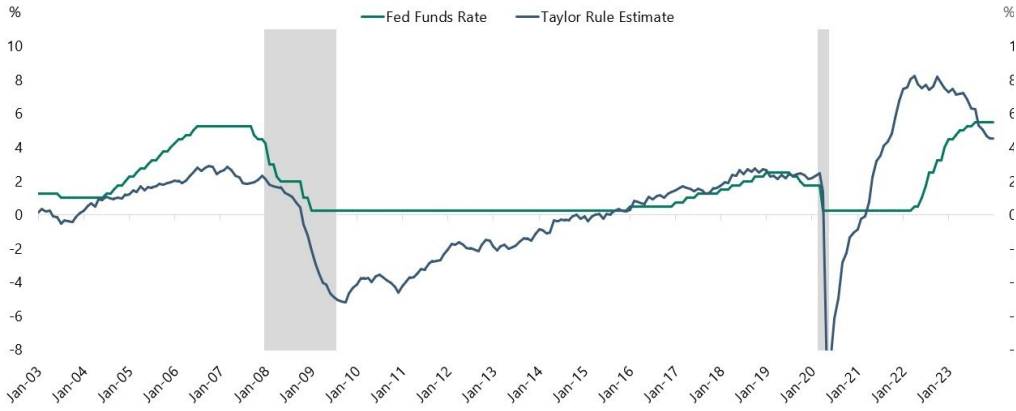
What Taylor rule does Pimco use?

Note: We define the Taylor Rule as "policy rate = max (neutral real rate + inflation target + a*(core inflation – inflation target) + b* output gap, 0). We
and add +/-0.5% to each. We consider a=1.25 and 1.5; and b = 0.5 and 1.0. That gives 24 Taylor rule estimates in total. The output gap is annual IMF
assuming NAIRU of 4.2% and Okun's law coefficient of 2). The estimates shown above is the median of these various iterations. Policy rate forecasts
estimates as of 8 January 2025. Source: Haver, PIMCO. Refer to Appendix for additional outlook and risk information.

PIMCO

Torsten Slok, Chief Economist at Apollo on Jan 25, 2024

The Taylor rule suggests the Fed should be cutting rates in March



Expected future short rates based on Taylor rule

- Examples assume that deviations from Taylor rule are temporary
  - Fed uses Taylor rule and also smoothes interest rates

$$r_t = \rho r_{t-1} + (1-\rho)\left[\phi_\pi \pi_t + \phi_y \left(y_t - y_t^p\right)\right] + \varepsilon_t$$

  - Rewrite as deviations

$$r_t - \left[\phi_\pi \pi_t + \phi_y \left(y_t - y_t^p\right)\right] = \rho\left[r_{t-1} - \left[\phi_\pi \pi_t + \phi_y \left(y_t - y_t^p\right)\right]\right] + \varepsilon_t$$

  - Consistent with autocorrelated but temporary deviations

- Also useful $E_t\left[r_{t+h}\right]$ over longer horizons h