Flexible inflation targeting: Principles and possible improvements

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Principles for flexible inflation targeting

- Principles simple; practice complicated
- Objective:
  - Inflation target, inflation stability
  - Output-gap stability (*flexible* IT)
  - Intertemporal loss function

1. Lags: Forecast targeting
   - Find instrument-rate path/plan such that projections of inflation and output gap “look good”
   - Current state of the economy
   - View of transmission mechanism
   - Projections of inflation and output gap conditional on alternative instrument-rate plans
   - Find optimal instrument-rate plan: Instrument-rate path that results in optimal inflation and output-gap projections

2. Announce projections and implement instrument path
- Transparency (press releases, minutes, inflation reports, strategy notes)
  - Accountability (democracy)
  - Incentives for CB
  - Efficient implementation: Management of expectations

3. Management of expectations
   - Expectations of future interest rates
   - Inflation expectations
   - Output expectations
   - Effective implementation of monetary policy
   - Better private-sector decisions

4. Forecast targeting implies appropriate response to shocks
   - Signal extraction
   - Filter through forecast
   - Respond accordingly
Possible improvements

• International best practice
  – Reserve Bank of New Zealand, Bank of England, Sweden’s Riksbank
  – Norges Bank?

• Several substantial improvements implemented. What remains?
  • Explicit intertemporal loss function
    \[ L_t = E_t \sum_{\tau=0}^{\infty} (1 - \delta)^\tau l_{t+\tau} \]
    Period loss function
    \[ l_t = (\pi_t - \pi^*)^2 + \lambda(y_t - \bar{y}_t)^2 \]
    For \( \delta \approx 1 \)
    \[ L_t \approx (E[\pi_t] - \pi^*)^2 + \text{Var}[\pi_t] + \lambda \text{Var}[y_t - \bar{y}_t] \]
    Parameters?
    – \( \pi^* \)
    – \( \delta \approx 1 \)
    – \( \lambda \)
    Decide and go public
    Interpretation clear and understandable

• Abandon assumption of constant interest rate
  Implemented: ahead of Bank of England and Riksbank

• Reference interest-rate path, reference projection: guide policy decision
  – Market expectations (now)
  – Not necessarily best forecast

• Optimal interest-rate path, optimal projection and best forecast
  – Best forecast of future interest rate
  – Best forecasts of future inflation and output gap

• Reduce emphasis on specific 2-year horizon
  – Too rigid, not optimal; horizon depends
  – Look at whole projection of inflation and output gap

• Potential output, natural (neutral) interest rate
  – Output gap
    * Potential output: Flexprice output
      Depends on shocks, not trend output
  – Interest-rate gap
    * Natural/neutral interest rate: Flexprice natural interest rate
      Depends on shocks, not average real interest rate

• Exchange rate
  – How to respond to exchange-rate movements?
  – Exchange rate as target?
• How to respond to exchange-rate movements?
  — Forecast targeting implies appropriate response to shocks
    * Signal extraction:
      What shock moved the exchange rate?
    * Filter through inflation and output-gap forecasts:
      How does the shock affect inflation and output-gap forecasts?
    * Respond accordingly

• Exchange-rate stability as target?
  Loss function alternatives
  \[ L_t = E_t \sum_{\tau=0}^{\infty} (1 - \delta)^\tau l_{t+\tau} \]
  \[ l_t = (\pi_t - \pi^*)^2 + \lambda(y_t - \bar{y}_t)^2 + ... \]
  — Additional terms
    Exchange-rate smoothing \((s_t, q_t)\) nominal, \((q_t, r_t)\) real (log) exchange rate
    \[ \lambda_s(s_t - s_{t-1})^2 \]
    \[ \lambda_s(q_t - q_{t-1})^2 \]
  Real-exchange rate stability
    \[ \lambda_q(q_t - \bar{q}_t)^2 \]
  Separate traded/nontraded output-gap stability
    \[ \lambda_T(y_t^T - \bar{y}_t^T)^2 + \lambda_N(y_t^N - \bar{y}_t^N)^2 \]

• Sterilized interventions?
  — Discussed by Riksbank, RBNZ
  — Leitemo: Sterilized interventions in the direction of uncovered interest parity
    \[ \tilde{s}_t = \tilde{s}_{t+1|t} = (\lambda_t - \lambda_t^*) + \varphi_t \]
    \[ = \tilde{s}_{t+T|t} - \sum_{\tau=0}^{T-1} (\lambda_{t+\tau|t} - \lambda_{t+\tau|t}^*) + \sum_{\tau=0}^{T-1} \varphi_{t+\tau|t} \]
    \[ \approx \tilde{q}_{t+T|t} + p_{t+T|t} - (\lambda_{t+T|t} - \lambda_{t+T|t}^*) - \sum_{\tau=0}^{T-1} (\lambda_{t+\tau|t} - \lambda_{t+\tau|t}^*) + \sum_{\tau=0}^{T-1} \varphi_{t+\tau|t} \]
  Additional loss
    \[ \lambda_s(\tilde{s}_t - \tilde{s}_t^*)^2 \]
  * Informational requirements?
    \[ \varphi_t = 0? \]
  * Effective?
    Sterilized interventions at best small short-term effects

Conclusions
• Flexible inflation targeting great
• Norges Bank in the top league
• Still room for some improvements