

**Flexible inflation targeting:
Principles and possible improvements**

Lars E.O. Svensson
Princeton University

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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

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- 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

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

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

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- Forecast targeting implies appropriate response to shocks
 - Signal extraction
 - Filter through forecast
 - Respond accordingly

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Possible improvements

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

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- Norges Bank Watch 2002
 - Institutional framework: Weak
 - Conduct of monetary policy: Best practice
 - Recommendations
 - * Institutional reform (legislation)
 - Mandate
 - Independence
 - Accountability
 - * Within existing legislative framework (several implemented)
 - * Conduct of monetary policy (almost all implemented)
 - * Debate about the exchange rate (implemented)
 - * Research, model development (implemented)

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- Several substantial improvements implemented. What remains?
- Explicit intertemporal loss function

$$L_t = E_t \sum_{\tau=0}^{\infty} (1 - \delta) \delta^\tau l_{t+\tau}$$

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?

- π^*
- $\delta \approx 1$
- λ
- Decide and go public
- Interpretation clear and understandable

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- 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

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- 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

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- Exchange rate
 - How to respond to exchange-rate movements?
 - Exchange rate as target?

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- 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

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- Exchange-rate stability as target?

Loss function alternatives

$$L_t = E_t \sum_{\tau=0}^{\infty} (1 - \delta) \delta^\tau l_{t+\tau}$$

$$l_t = (\pi_t - \pi^*)^2 + \lambda(y_t - \bar{y}_t)^2 + \dots$$

– Additional terms

Exchange-rate smoothing (s_t nominal, q_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

$$\lambda_T (y_t^T - \bar{y}_t^T)^2 + \lambda_N (y_t^N - \bar{y}_t^N)^2$$

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– Problems

- * Information requirements?
- * Accountability?
- * Tradeoff against $(\pi_t - \pi^*)^2 + \lambda(y_t - \bar{y}_t)^2$?

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- Sterilized interventions?

– Discussed by Riksbank, RBNZ

– Leitemo: Sterilized interventions in the direction of uncovered interest parity

$$\begin{aligned} \tilde{s}_t &= \tilde{s}_{t+1|t} - (i_t - i_t^*) + \varphi_t \\ &= \tilde{s}_{t+T|t} - \sum_{\tau=0}^{T-1} (i_{t+\tau|t} - i_{t+\tau|t}^*) + \sum_{\tau=0}^{T-1} \varphi_{t+\tau|t} \\ &\approx \bar{q}_{t+T|t} + p_{t+T|t} - p_{t+T|t}^* - \sum_{\tau=0}^{T-1} (i_{t+\tau|t} - i_{t+\tau|t}^*) + \sum_{\tau=0}^{T-1} \varphi_{t+\tau|t} \end{aligned}$$

Additional loss

$$\lambda_s (s_t - \tilde{s}_t)^2$$

* Informational requirements?

$\varphi_t = 0$?

* Effective?

Sterilized interventions at best small short-term effects

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Conclusions

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

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