Model uncertainty and monetary policy at the Riksbank

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Flexible inflation targeting

- Stabilize inflation around the inflation target (2%/yr)
- Stabilize resource utilization
- Loss function
  - Period loss function ($\lambda > 0$)
    \[ L_t = (\pi_t - \pi^*)^2 + \lambda (y_t - \bar{y}_t)^2 \]
  - Intertemporal loss function
    \[ E_t \sum_{\tau=0}^{\infty} (1 - \delta)^{\tau} L_{t+\tau} \]
Flexible inflation targeting

- “Forecast targeting:” Choose the interest-rate path so that the resulting forecast for inflation and resource utilization “looks good”
- “Looks good:” Inflation approximately at 2% and resource utilization at normal 2-3 years ahead, or inflation approaching target and resource utilization approaching normal level at appropriate pace
- Riksbank: “Well-balanced” monetary policy
- “Optimal” monetary policy

Alternative interest-rate paths and forecasts, February 2008
Forecasts are uncertain

- Probability distribution
  - Mean
  - Uncertainty interval
- Depends on available information
- Revised when new information is received
- ”Forecast, not a promise!”

Mean value with uncertainty interval, February 2008

Sources: Statistics Sweden and the Riksbank
Baseline scenario, Norges Bank, January 2008
Per cent, 2005:1 – 2010:4

Sources: Statistics Norway and Norges Bank

Forecast targeting:
Handling new information

- New information relevant only if it changes the forecast for inflation or resource utilization for an unchanged interest-rate path
- “Filter new information through the forecast”
- New info shifts forecasts for inflation and resource utilization up (down) with unchanged interest-rate path
- Shift interest-rate path up (down)
Forecast targeting:
Handling new information

CPIX
Annual rate, percent

Repo rate
Percent

Note: Broken lines refer to the Riksbank’s forecasts
Sources: Statistics Sweden and the Riksbank

Handling uncertainty

- Forecasts are mean forecasts, not mode
- “Risk-adjusted”
- Consistent with certainty equivalence: Known LQ model, additive uncertainty
- Uncertainty intervals: Mainly to emphasize forecast uncertainty, do not affect policy
- “Forecasts, not promises/commitments” (instrument-rate path)
**Handling model uncertainty**

- *Informal* model averaging: Combination of forecasts from several models (DSGE model, Bayesian VAR, indicator models)
- Various judgmental adjustments (determination of inflation expectations, non-rational expectations)

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**Model and staff forecasts, Feb 2008**

- **Repo rate**
  - Per cent

- **GDP growth**
  - Annual percentage change

- **CPIX**
  - Annual percentage change

- **Output gap**
  - Percentage deviation from the HP trend
Handling *model* uncertainty

- *Informal* considerations in individual Board member motivations
  - Names in Board minutes
- Simulations for given instrument rule (including optimal instrument rule) with parameter and shock uncertainty to construct mean forecast and uncertainty intervals