Theory meets practice: What have I learned doing inflation targeting?

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Flexible inflation targeting

- Stabilize both inflation around target and resource utilization around normal
- “Forecast targeting”: Choose policy-rate path so forecast for inflation and real economy “looks good”
- “Looks good”: Inflation goes to target and resource utilization goes to normal at appropriate pace
- Riksbank: “Well balanced” policy
- Set policy rate and publish and justify forecast of policy rate, inflation, and real economy

Flexible inflation targeting

- More formally: Choose policy-rate path so as to minimize quadratic forecast loss function
  \[ \sum_{\tau=0}^{\infty} (\pi_{\tau+1} - \pi^*)^2 + \lambda \sum_{\tau=0}^{\infty} (y_{\tau+1} - \overline{y}_{\tau+1})^2 \]
  where \( \pi_{\tau+1} - \pi^* \) mean inflation gap forecast
  \( y_{\tau+1} - \overline{y}_{\tau+1} \) mean output gap forecast
  \( \lambda \) constant relative weight on output-gap stabilization

Transmission mechanism, not obvious?

- Monetary policy affects inflation and real economy through effects on private-sector expectations about inflation, future interest rates, and the real economy
- Expectations about future interest rates (whole repo-rate path) matters, not current repo rate
- Real interest rates matter, not nominal ones
- Expected repo-rate path matters, not published
- Not obvious to everyone

Characteristics of optimal policy, not obvious

- Linear models, quadratic loss: Inflation approaches target and resource utilization approaches normal gradually (exponentially, asymptotically)
- Equilibrium solution
  \[ m_t - \bar{m} = \sum_j A_j m_j^t, \quad 1 \geq |m_1| \geq |m_2| \geq \ldots \]
  \[ m_t - \bar{m} = \sum_j B_j p_j^t \]
- Fixed horizon (“normally reach inflation target within two years”) not appropriate
- Gap to target at any horizon depends on initial gap

Characteristics of optimal policy, not obvious

- “Half-time” more appropriate (Schmidt-Hebbel)
  \[ |p_t|^2 = \frac{1}{2}, \quad H = -\frac{\ln 2}{\ln |p_t|} \]
- Riksbank practice: Inflation target not reached within two years
CPI forecasts, 2005-2009
Annual percentage change

Source: The Riksbank

CPIX forecasts, 2005-2008
Annual percentage change

Source: The Riksbank

CPIF forecasts, 2008-2009
Annual percentage change

Source: The Riksbank

Characteristics of optimal policy, not obvious
- Riksbank phrases now mixed: “within two years”, “in a couple of years”, “in a few years”
- Other IT central banks: “Medium term”

Loss function, not obvious
- Ongoing discussion about loss function or not
- Examples of arguments:
  - “Monetary-policy objectives too complex for loss function”
  - “Aggregate measure of resource utilization not meaningful, several measures needed”
  - “\( \lambda \) should depend on the circumstances”
- Norges Bank seems to be ahead

Measurement of resource utilization, complicated
- Stabilizing resource utilization requires measures of resource utilization
- Which measure? Output gap, which potential output?
- “Aggregate measure of resource utilization not meaningful, several measures needed”
- Conceptual and estimation problems, not solved, not yet agreement
- Progress slower than I would like
- Norges Bank seems to be ahead
Transparency, not controversial

- Improve private-sector information, reduce uncertainty
- More effective external scrutiny and evaluation: Improve central-bank incentives
- Strengthen democratic accountability
- Riksbank
  - High transparency ranking in academic literature
  - Explicit communication policy

Publishing policy-rate paths

- RBNZ 97, Norges Bank 05, Riksbank 07, Sedlabanki Islands 07, CNB 08
- Why so few?

Management of policy-rate expectations

- Riksbank publishes and explains forecast of repo rate, inflation and real economy
- What is the Riksbank’s record in managing interest-rate expectations?
- Compare repo-rate path to market expectations (adjusted implied forward rates) before and after announcement
Repo-rate path and market forward rates

December 2007

February 2008

April 2008

July 2008

September 2008

October 8, 2008
Management of policy-rate expectations

- Pretty good, but not a complete success
- Repo-rate path taken more seriously over time
- “Forecast, not a promise”
- Good credibility in February 2009, but low in April 2009
- Then “effective/actual” monetary policy much tighter than “published/intended”

If longer period of low policy rate credible:
1. Higher inflation and inflation expectations
2. Lower real interest rate
3. Higher resource utilization/lower unemployment
4. Weaker currency
- More expansionary monetary-policy package
Why current lack of credibility?
- Why repo-rate expectations > 0.50%?
- Inconsistent communication
  - “0.50% may be minimum”
  - “Repo rate may be increased earlier”
- Implies mean repo-rate > 0.50%
- Credible mean requires consistent probability distribution (Executive Board’s own)
- Problem of too tight monetary policy not obvious to everyone

What can be done to improve credibility?
To keep policy-rate expectations down:
- Lending at policy rate at longer maturities (more direct than buying government bonds)
- Acknowledge that the effective lower bound is soft, not hard, and may be negative
- If cashless economy: Nothing special with zero
- Cash: Effective yield negative!

What can be done to improve credibility?
- Publish uncertainty intervals consistent with mean policy-rate path
- Better with ambiguity about ZLB?

The exchange rate, controversial
- One of the risks at ZLB: Too strong currency
- Normally, strong or weak currency countered by higher or lower policy-rate path
- At ZLB, not lower policy-rate path
- Previously, too weak currency often the problem; now, too strong currency the problem
- Requires rethinking about the exchange rate
- Not easily accepted by everyone

The exchange rate, controversial
- If too strong currency, use FX interventions (Switzerland)
- Not beggar-thy-neighbor: Instead inherent part of expansionary monetary policy
- Not accepted by everyone

Conclusions: What have I learned?
- Conventional wisdom in academics, teaching, and research not necessarily conventional wisdom among policymakers and staff
- “Knowledge gap” relative to frontier of teaching/research/publishing
- “Intellectual inertia/conservatism”
- Considerable diversity of views, less common ground
- Diversity good, if knowledge-based
- Needed: More discussion and education about both principles and practice of monetary policy
Conclusions: What have I learned?
- Recently dramatic changes in environment: Financial crisis, deteriorating real economy, ZLB. Requires substantial rethinking
- Six policy meetings per year very appropriate, but two months little time for substantial rethinking

Conclusions: What have I learned?
- Problem: Staff overworked, too few
- More resources/staff needed for time for discussion, education, research, thinking
- Research not only in designated research department but also in policy departments
- Staff should regularly teach policymakers
- Education of policymakers: First at appointment and then reoccurring