Forward Guidance by Inflation-Targeting Central Banks

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Sveriges Riksbank
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Should Central Banks Talk About Future Policy?

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- Explicit consideration of future policy — and communication about it — have taken on further prominence since the crisis

  — as many banks have reached a lower bound for their current policy rate

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1. Generally recognized that effects of policy are mainly in the future

   — but can't conduct policy in a forward-looking way, without having simultaneously to think about anticipated future policy

2. Also widely recognized that anticipated future policy affects economy, and not just current policy actions

   — but unlikely to shape effects in desirable way unless consider in advance what one would like people to anticipate about future policy

Should Central Banks Talk About Future Policy?

- Attempts to conduct policy in a forward-looking way, but without any explicit decision about a forward path for policy, lead to intertemporal inconsistency:

  — decision based on a projection of the future that one shouldn't believe, given the implications of the exercise itself, and understanding of how it should work in the future

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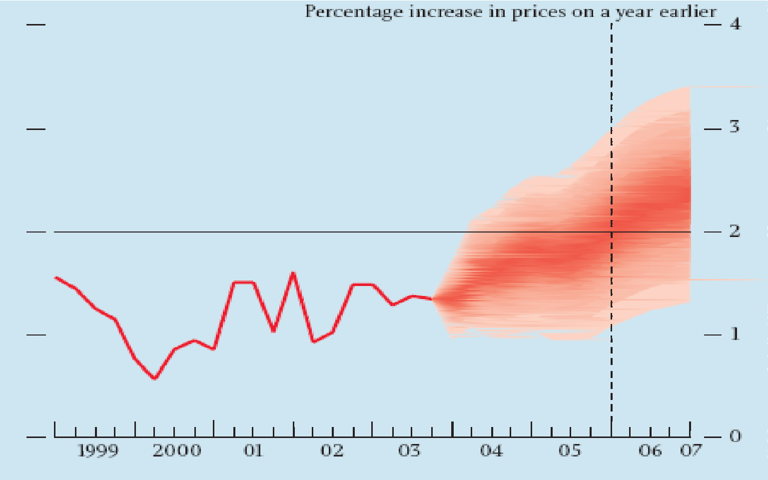
- Example: forecast-targeting procedure of Bank of England (until 8/04):
  - policy decision based on constant-interest-rate forecast
  - interest rate chosen so that inflation is projected to equal target rate, 8 quarters in the future

Bank of England, Feb. 2004



Projection under assumption of constant 4% policy rate.

Constant-Interest-Rate Projections

- Advantages of the procedure:
  - search over a one-parameter family of possible policies, allowing determinate answer from a single target criterion
  - allows CB to avoid specifying target other than for medium run
  - allows CB to avoid commenting on future policy
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  - alternative hypothesized current policy settings have non-trivial effect on projections, because treated as *permanent* changes
- BUT: may involve patent internal inconsistency

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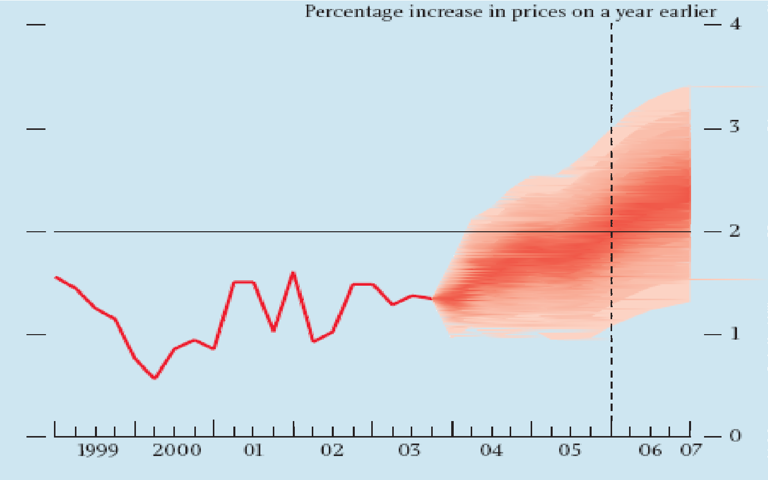

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Projections Based on “Market Expectations”

- BoE solution to this problem [procedure used after 8/04]:
  - infer a forward path for the policy rate, from futures prices or term structure of interest rates
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  - but not clear how to decide on policy, if projection based on mkt expectations not acceptable
  - may lead to bias toward fulfilling market expectations: which would result in indeterminacy!

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  - in forward-looking model, typically leads to indeterminacy
  - or in backward-looking model, leads to instability
- Solution to these problems: endogenous determination of forward path of policy as part of the forecast-targeting procedure
  - thus not specifying interest-rate path independently of evolution of other variable: instead, simultaneously determined

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    - discusses methods to resolve disagreements among committee members as to ranking

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- But even if all agree about ranking of possible outcomes, and maintain the same preferences (or loss function) over time, such a procedure will generally not be intertemporally consistent

Choosing a Forward Path for the Policy Rate

- The problem: if model used for projections takes account of how expected future policy influences outcomes, then forward path chosen at one date will be chosen on basis of these anticipation effects

  — but later, committee will have no motive to choose a path for policy that continues the forward path chosen earlier

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- Essentially, the problem emphasized by Kydland and Prescott (1977)

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- Yes: need to choose the forward path that leads to projections satisfying a target criterion, rather than maximizing an objective

  — but not the original BoE target criterion

Choosing a Forward Path for the Policy Rate

- Need to require some criterion to be satisfied at each future horizon (after some minimum delay), rather than only a single horizon

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- Example: criterion used by Norges Bank (2005-2007)

Criteria for an appropriate future interest rate path

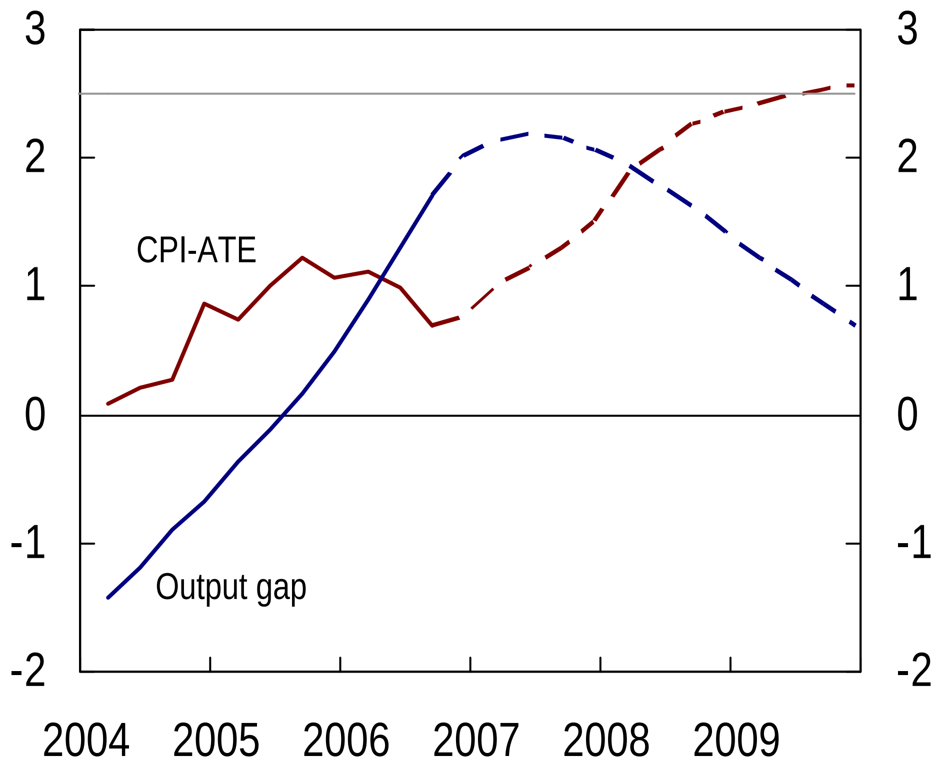
The following criteria may be useful in assessing whether a future interest rate path appears reasonable compared with the monetary policy objective.

1. If monetary policy is to anchor inflation expectations around the target, the interest rate must be set so that inflation moves towards the target. Inflation should be stabilised near the target within a reasonable time horizon, normally 1-3 years. For the same reason, inflation should also be moving towards the target well before the end of the three-year period.

2. Assuming that inflation expectations are anchored around the target, the inflation gap and the output gap should be in reasonable proportion to each other until they close.[1] The inflation gap and the output gap should normally not be positive or negative at the same time further ahead.

3. Interest rate developments, particularly in the next

Chart 1.13 Projected CPI-ATE[1)] and output gap in the baseline scenario. Quarterly figures. Per cent. 04 Q1 – 09 Q4



[1)] CPI-ATE: CPI adjusted for tax changes and excluding energy products. A further adjustment is made for the estimated effect of reduced maximum day-care rates from January 2006.

Sources: Statistics Norway and Norges Bank

Choosing a Forward Path for the Policy Rate

- Advantage of this approach: rate of convergence to the long-run inflation target is specified, not by requiring the target to be hit at a specific horizon, but by requiring a certain kind of proportionality between inflation gap and output gap to be maintained as convergence occurs

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- Unlike a requirement that target be fulfilled at a specific horizon, this is intertemporally consistent

What Kind of Target Criterion?

- The simple criterion used by Norges Bank in 2005-2007 had some desirable features:
    - short-run adjustment to "cost-push" disturbances is divided between temporary changes in inflation, output gap
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- The simple criterion used by Norges Bank in 2005-2007 had some desirable features:
  - short-run adjustment to "cost-push" disturbances is divided between temporary changes in inflation, output gap
  - criterion nonetheless implies convergence to target inflation rate eventually
- But an even better criterion might be one that specifies a target path for the level of some nominal variable, rather than just its projected growth rate

What Kind of Target Criterion?

- Instead of Norges Bank target criterion,

$$\pi_t - \pi^* = -\phi(y_t - y_t^*),$$

replace inflation gap by a price-level gap:

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- In case that $\phi = 1$, this can alternatively be expressed in terms of a nominal GDP target path:

$$p_t + y_t = p_0^* + y_t^* + \pi^* t$$

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    — harder for substantial cumulative inflation above or below target rate π^* to occur as a result of errors in forecasting model, or in measurement of potential output (Orphanides concern)
  - and also limits the stabilization losses resulting from inability to hit targets for a time, as a consequence of binding interest-rate lower bound

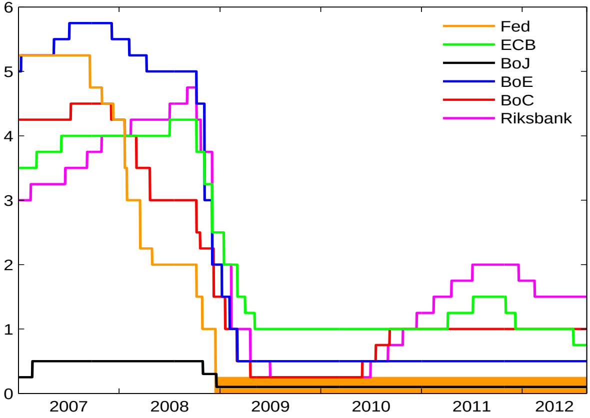
Monetary Policy at the Interest-Rate Lower Bound

- Since the crisis, many central banks have experimented with more aggressive forms of forward guidance

- Reason: they have reached effective lower bound for their policy rate (self-imposed), while aggregate demand remains insufficient

  — commitment to keep policy rate low for longer in future can be used as substitute for additional immediate interest-rate cut

Central-Bank Policy Rates



Effective Forward Guidance

- Does this mean that it suffices for CB to offer a forecast of future path of its policy rate?
  - FOMC: “The Committee currently anticipates that economic conditions ... are likely to warrant exceptionally low levels of the federal funds rate at least through mid-2013.”

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  - FOMC: "The Committee currently anticipates that economic conditions ... are likely to warrant exceptionally low levels of the federal funds rate at least through mid-2013."
- No, for two reasons:
  1. simply convincing people that short rates will remain low for longer not enough: if they believe this because outlook has worsened, and not a change in CB reaction function, change in beliefs will be contractionary!

Is a Forecast Enough?

2. May not be enough for CB to offer its forecast: need also to give people a reason to believe it

   — obvious way: by explaining how future policy decisions will be made

   — something about which CB is obviously better-informed

Is a Forecast Enough?

- Even clearer example of forward guidance based purely on forecasts: Sveriges Riksbank's releases of projected repo rate path
  - presentation parallel to projections for variables not under direct control
  - accompanied by confidence bands
  - "repo rate path a forecast, not a promise"

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    - presentation parallel to projections for variables not under direct control
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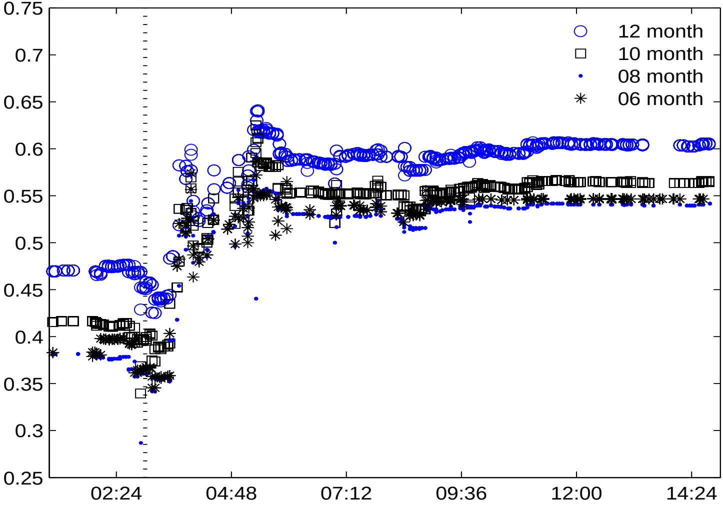
    - "repo rate path a forecast, not a promise"
- In this context, announcements of anticipated constant policy rate for specified period doesn't always have desired effect on market anticipations

Forward Guidance: Sveriges Riksbank

- April 21, 2009:
  - announcement of repo rate cut from 1.0 percent to 50bp
  - press release: "the repo rate is expected to remain at a low level until the beginning of 2011"
  - *Monetary Policy Update* issued with new repo rate path: horizontal at 50 bp until 2011

Riksbank: April 21, 2009



Effects on OIS rates (intraday data).

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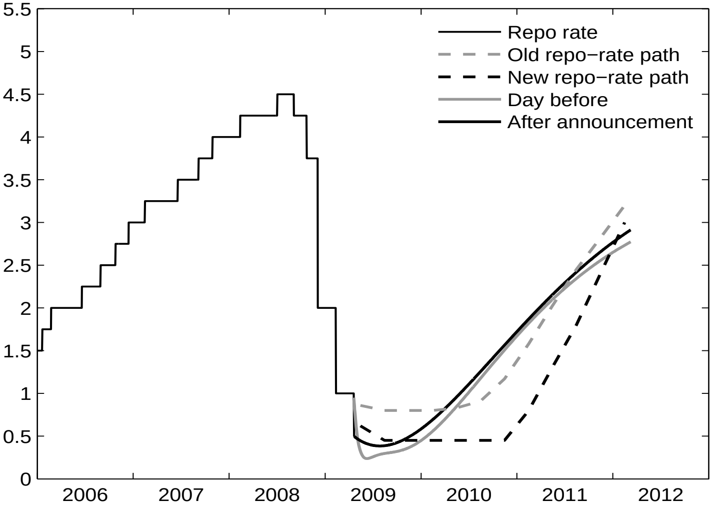

The published repo rate path and market expectations.

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- A conjecture: the news extracted by market participants is the apparent 50 bp floor
    - not previously understood to be a constraint: many had expected 25bp from this meeting
    - while no lower bound announced, flat segment on published path seems to demonstrate that 50bp is lower bound
    - hence this news about Riksbank's decision rule implies a higher repo rate path than had been expected

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- Possible problem: forecast targeting procedure not time consistent?
  - "in connection with every monetary policy decision, the Executive Board makes an assessment of the repo-rate path needed for monetary policy to be well-balanced"
  - a purely forward-looking criterion?

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- Does this mean CB should instead make unconditional promise to keep policy rate low for a specified time period?
  - No: not a feature of an optimal commitment
  - want policy different from what would be optimal ex post (on purely forward-looking grounds): but this doesn't require it to be non-state-contingent (and optimal commitment is state-contingent!)

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  - based on economic outcomes, rather than date
  - criterion should be history-dependent: looser policy should be called for later, as a consequence of the binding lower-bound constraint
- Explaining the criterion in advance should change expectations about future policy, without having to create pessimism about future outcomes

Forward Guidance by the Federal Reserve

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- September 2012: indicated for first time not only that expected low ff rate to continue to be warranted for several more years, but also that low rate would "remain appropriate for a considerable time after ... the economic recovery strengthens"

  — thus indicating intention to deviate from standard reaction function

  — precluding pessimistic interpretation of the distant date ("at least until mid-2015")

Forward Guidance by the Federal Reserve

- December 2013: abandoned reference to a specific future date; instead, low ff rate

  > will be appropriate at least as long as the unemployment rate remains above 6-1/2 percent, inflation between one and two years ahead is projected to be no more than a half percentage point above the Committee's 2 percent longer-run goal, and longer-term inflation expectations continue to be well anchored

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- Desirable features of this approach:
  - contingent on outcomes, rather than date-based
  - indicates relevance of real (labor-market) outcomes for near-term policy, while reaffirming relevance of longer-run inflation target

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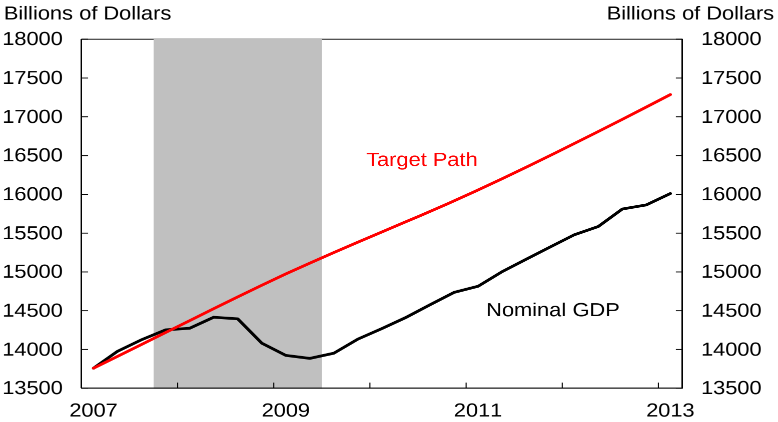
- Contrary to the way some have portrayed them, the FOMC's thresholds do not represent a repudiation of their previous announcement of an inflation target

- However, the goal that they seek to accomplish could more naturally be achieved, within a forecast-targeting framework, through adoption of a suitable intermediate target criterion

Implications of an NGDP Target Path



Continuing gap of 8 percentage points

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  - would imply not appropriate to raise ff rate above floor for a considerable time (likely years away)
  - would imply that, in the absence of any significant increase in inflation, "liftoff" of ff rate can occur only if a specified amount of real growth in excess of trend (narrowing output gap)
  - but specifies will tighten if too much inflation occurs before output gap eliminated

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    — helps to prevent "deflation trap"
  - allows commitment to period of unusual accommodation to be explained as consequence of same targets as had been pursued before, and are to be pursued in future

    — so less risk of undermining credibility of purported commitments

Conclusions

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- Current forecast-targeting approaches could be improved by
  - adopting an explicit intermediate target criterion (to be satisfied at each of a succession of horizons) to explain how forward path of policy is selected
  - adopting criterion based on target path for a nominal level variable, such as NGDP

Conclusions

- Would address weaknesses of existing approaches revealed by the crisis:
  - clarify that keeping medium-run inflation outlook on track is not always sufficient
  - allow more potent monetary policy response when interest-rate lower bound is reached