Forward Guidance by
Inflation-Targeting Central Banks

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One of the most notable features of inflation targeting: increased transparency
— both about the goals of policy, and about the way that policy decisions are made
Should Central Banks Talk About Future Policy?

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This has included increased explicitness about how policy is expected to be conducted in the future — particularly at banks like the Riksbank, that regularly publish a forward path for their policy rate.

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.
Should Central Banks Talk About Future Policy?

Why not simply face each decision only when action must be taken?

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.

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.

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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
Projection under assumption of constant 4% policy rate.
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
- alternative hypothesized current policy settings have non-trivial effect on projections, because treated as permanent changes

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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
  - project future evolution of economy conditional upon this path for interest rates
  - adopt current policy rate anticipated by the markets, if projection satisfies target criterion

Again seems to allow policy decision without requiring consideration of Bank's own future policy intentions 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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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
Choosing a Forward Path for the Policy Rate

- How, though, to determine a forward path for policy, as part of a forecast-targeting procedure?
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- Svensson (2007) supposes that the policy committee can be shown a range of possible projected paths for the economy, corresponding to different forward paths for policy, from which it could choose the projection it likes best.

  - 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

- because will not take into account anticipation effects in the later calculation
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Essentially, the problem emphasized by Kydland and Prescott (1977).
Can any sequential procedure — that chooses an entire forward path for policy, at each decision point — be intertemporally consistent?
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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

— this **sequence** of conditions can determine an entire **sequence** of policy rates, without needing a restriction like the constant-interest-rate assumption
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- Example: criterion used by Norges Bank (2005-2007)
Monetary policy cannot fine-tune developments in the economy, but must prevent the largest effects when the economy is exposed to disturbances. In some situations, it may be appropriate to guard against particularly adverse developments.

The policy rate was reduced to a very low level in 2003 and 2004 primarily with a view to preventing inflation expectations from becoming entrenched well below target. In spite of a longer period of low inflation, inflation expectations are close to the inflation target (see Chart 1.8). According to TNS Gallup’s expectations survey, a growing share of enterprises expects purchase prices to rise. At the same time, the contact enterprises in Norges Bank’s regional network expect retail prices to increase in the period ahead. On balance, the likelihood that low inflation will be followed by deflation now appears to be small. Nevertheless, it is appropriate to guard against the risk of a slower rate of inflation when inflation is already at a low level.

Capacity utilisation is rising at a faster pace than expected. We have previously seen that cost inflation can accelerate quickly in a tight labour market. It may then be necessary to increase interest rates substantially in order to stabilise inflation. Such a development would be particularly unfavourable in a situation with high household debt. With a high debt burden, an interest rate increase would result in a considerable fall in disposable income. The risk of a pronounced downturn in the economy as a result of a high level of capacity utilisation and rising price and cost inflation seems to have increased somewhat. In order to guard against such a development, a pre-emptive increase in interest rates would be appropriate.

Monetary policy affects the economy with a lag and primarily influences inflation one to three years ahead. Against the background of high growth in output and employment, rising wage growth and a weaker krone, there are prospects of higher consumer price inflation ahead. On balance, developments since the previous Report suggest that it would be appropriate to raise the policy rate gradually towards a more normal level at a somewhat faster pace than envisaged earlier, although it is unlikely that rates will be raised at every monetary policy meeting (see Charts 1.9 and 1.10). Based on our current assessment, the interest rate will thus continue to be raised in small, not too frequent steps if economic developments are broadly in line with projections.

A gradual normalisation of the interest rate level will contribute to curbing growth in the Norwegian economy. Growth in household demand will be restrained by somewhat weaker growth in real disposable income. Investment growth in the mainland economy is expected to ease. Weaker growth in the world economy, in conjunction with

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. 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 few months, should result in acceptable developments in inflation and output also under alternative, albeit not unrealistic assumptions concerning the economic situation and the functioning of the economy.

4. The interest rate should normally be changed gradually so that we can assess the effects of interest rate changes and other new information about economic developments.

5. Interest rate setting must also be assessed in the light of developments in property prices and credit. Wide fluctuations in these variables may in turn constitute a source of instability in demand and output in the somewhat longer run.

6. It may also be useful to cross-check by assessing interest rate setting in the light of some simple monetary policy rules. If the interest rate deviates systematically and substantially from simple rules, it should be possible to explain the reasons for this.

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1 The inflation gap is the difference between actual inflation and the inflation target of 2.5%. The output gap measures the percentage difference between actual and projected potential mainland GDP.
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
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
  - criterion nonetheless implies convergence to target inflation rate eventually

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- 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:

\[ p_t - (p_0^* + \pi^* t) = -\phi(y_t - y_t^*) \]
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In case that \( \phi = 1 \), this can alternatively be expressed in terms of a nominal GDP target path:

\[ p_t + y_t = p_0^* + y_t^* + \pi^* t \]
Advantages of commitment to a target path for a nominal level variable:

- Phillips-curve tradeoff less affected by “cost-push” disturbances owing to anticipation of subsequent return to same trend.

Commitment to error-correction also increases robustness:
- Harder for substantial cumulative inflation above or below target rate $\pi^*$ 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.
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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

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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.”
Effective Forward Guidance

1. Does this mean that it suffices for CB to offer a forecast of future path of its policy rate?

2. 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.”

3. 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!
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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- In this context, announcements of anticipated constant policy rate for specified period doesn’t always have desired effect on market anticipations
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
Effects on OIS rates (intraday data).
The published repo rate path and market expectations.

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Why doesn’t the forward guidance lower expected future path of overnight rate in this case?
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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
There was also a forecast of staying at 50bp until 2011: evidently not believed

merely a forecast, no explanation of the decision criterion that would lead to this outcome
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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?
What is needed instead: commitment to a different course of conduct later

— i.e., to make policy decisions later on the basis of a history-dependent criterion

Effective Forward Guidance

- What is needed instead: **commitment** to a different course of conduct later
  - i.e., to make policy decisions later on the basis of a **history-dependent** criterion

- Does this mean CB should instead make **unconditional promise** to keep policy rate low for a specified time period?
Effective Forward Guidance

- What is needed instead: commitment to a different course of conduct later
  - i.e., to make policy decisions later on the basis of a history-dependent criterion

- 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!)
Effective Forward Guidance

- Needed instead: advance commitment to a particular criterion to determine when it is appropriate to begin raising policy rate

- based on economic outcomes, rather than date
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  - criterion should be history-dependent: looser policy should be called for later, as a consequence of the binding lower-bound constraint
Effective Forward Guidance

- Needed instead: advance commitment to a particular criterion to determine when it is appropriate to begin raising policy rate 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.
Since last fall, the FOMC has moved in this direction, by introducing *state-dependent* forward guidance.
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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”)

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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.
December 2013: abandoned reference to a specific future date; instead, low f/f 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

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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— or would such thresholds be a replacement for it?
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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
Comparison with FOMC Approach

- Thus commitment to return to NGDP target path would have similar consequences as FOMC’s thresholds:

  - would imply not appropriate to raise ff rate above floor for a considerable time (likely years away)
Comparison with FOMC Approach

- Thus commitment to return to NGDP target path would have similar consequences as FOMC’s thresholds:
  - 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
Comparison with FOMC Approach

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  - a complete criterion: also tells when “liftoff” should occur, if inflation picks up before output gap has been eliminated
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  - automatically implies more expansionary future policy if inflation decelerates
    — helps to prevent “deflation trap”
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  - a complete criterion: also tells when “liftoff” should occur, if inflation picks up before output gap has been eliminated
  - automatically implies more expansionary future policy if inflation decelerates
    — 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
Explicit consideration (and public discussion) of future policy, and not just current decision, is an important element of a coherent forecast-targeting framework.
Conclusions

- Explicit consideration (and public discussion) of future policy, and not just current decision, is an important element of a coherent forecast-targeting framework.

- 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