The Zero Bound on Interest Rate and Optimal Monetary Policy

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Content

• Consequences of zero bound on interest rate
• Optimal monetary policy
  – What the optimal monetary policy is
  – How to implement the optimal monetary policy
  – Discussions on other ways to achieve the target
Is “Quantitative Easing” a Separate Policy Instrument?

• **A policy adopted by Japan.**
• Module: explicit intertemporal equilibrium model.

• **Assumptions:**
  – Not changing the expected future conduct of monetary or fiscal policy.
  – Complete financial markets
  – No limits on borrowing against future income
Is “Quantitative Easing” a Separate Policy Instrument?

• Conclusion:
  - Open market operations do little if anything to the control of deflation.
  - If there are any, it is because they change expectations regarding future interest-rate policy.
How Severe a Constraint is the Zero Bound?

• To achieve the inflation target, a necessary condition has to be satisfied:

\[ i_t = r_t^n + \pi^* \]
How Severe a Constraint is the Zero Bound?

• If inflation target is zero and natural interest rate is negative, the zero bound binds, which results in occurrence of deflation and output gap getting bigger.

• When targeting on a positive inflation rate, even if natural rate is negative, we could still achieve the target.
How Severe a Constraint is the Zero Bound?

- Another conclusion drawn is that the purely forward-looking policy is ineffective.
- However, commitment to a history-dependent policy can be effective.
Optimal Policy Commitment

- It is history dependent.
- Committing to the creation of an output boom
- Committing to a higher price level in the future, yet the price level will ultimately be stabilized.
- Committing to raise interest rates slowly when the natural rate becomes positive
Implementing Optimal Policy

• Problems facing:
  – A non-trivial one
  – A complete description is unfeasible

• No estimate or knowledge of the statistical process for the natural rate of interest
Implementing Optimal Policy

• An optimal targeting rule:
  – The centre bank only observe the price level and the output gap.
  – It makes sense to announce an inflation target even if one knows that it is unlikely to be achieved in the short run.
Implementing Optimal Policy

• A simpler proposal:
• Do not involves the changes in the price-level target
• Most of the benefits can be achieved when the zero bound is not binding.
• Can result in even worse outcome when the zero bound is binding.
Preventing a Self-Fulfilling Deflationary Trap

• If the actual price level would fall further and further short of the target because of the binding zero bound, nothing could be done by central bank.
Preventing a Self-Fulfilling Deflationary Trap

- “A commitment to supply base money in proportion to the target price level and not the actual current price level, in a period in which the zero bound prevents the centre bank from hitting its price-level target, can be desirable both as a way of ruling out self-fulfilling deflations and as a way of signalling the central bank’s continuing commitment to the price level target, even though it is temporarily unable to hit it.”

--- Gauti Eggertsson & Michael Wood ford
Management of Expectations

• 1. Demonstrating Resolve:
• Be consistent with the same principles that the central bank wishes the private sector to understand will guide its policy in the future.
Management of Expectations

• 2. Providing Incentives to Improve Credibility

• A current policy action can help to shift expectations regarding future policy in a desirable way

• E.g. tax cut, issue additional nominal debt & open market operations
Conclusion

• Quantitative easing is not a separate policy instrument
• Purely forward-looking approach to policy can lead to bad outcomes
• Optimal Policy can bring price back up even to a higher level
• Management of expectation is essential.
• Precondition: The central bank itself can clearly understand the policy it committed so as to communicate its thinking to the private sector.
Thank you!
Figure 1: Evolution of the call rate on uncollateralized overnight loans in Japan, and the Japanese monetary base relative to GDP [1992 = 1.0].