

# The Zero Bound on Interest Rate and Optimal Monetary Policy

Written by Gauti Eggertsson International Monetary Fund  
&

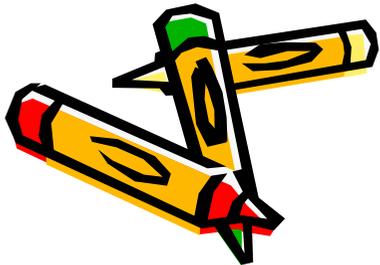
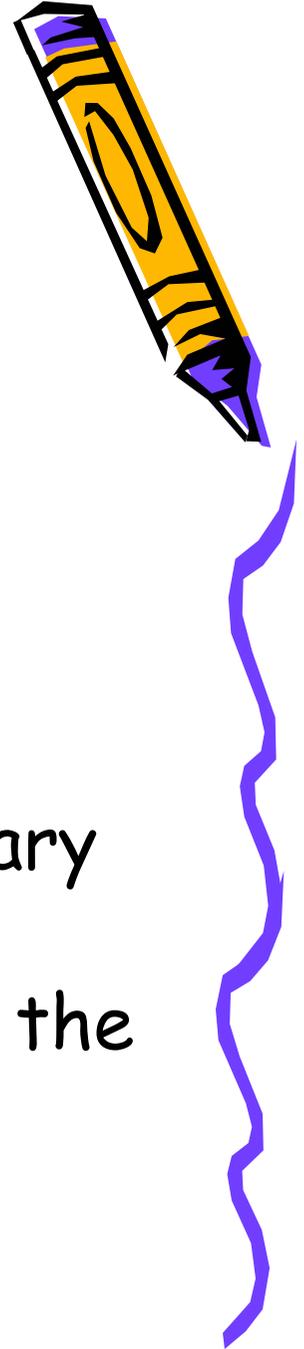
Michael Woodford Princeton University

Presented by Michelle Ding



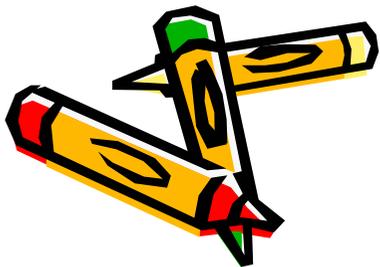
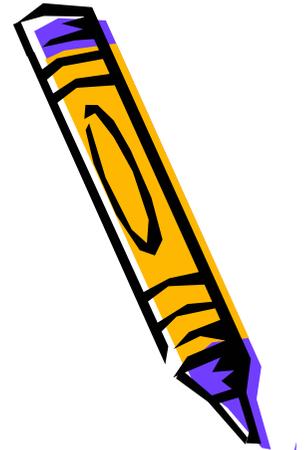
# Content

- 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



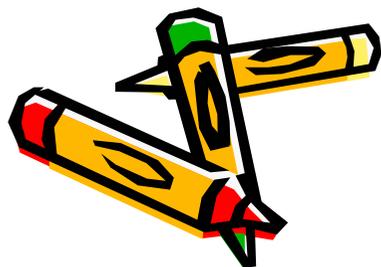
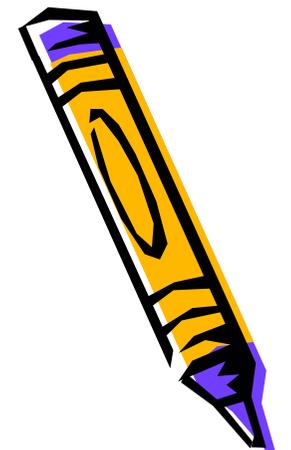
# Is “Quantitative Easing” a Separate Policy Instrument?

- 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?

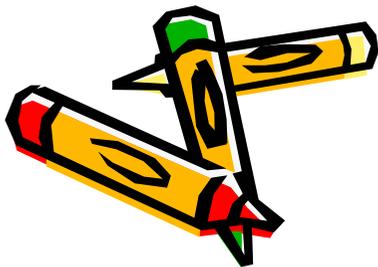
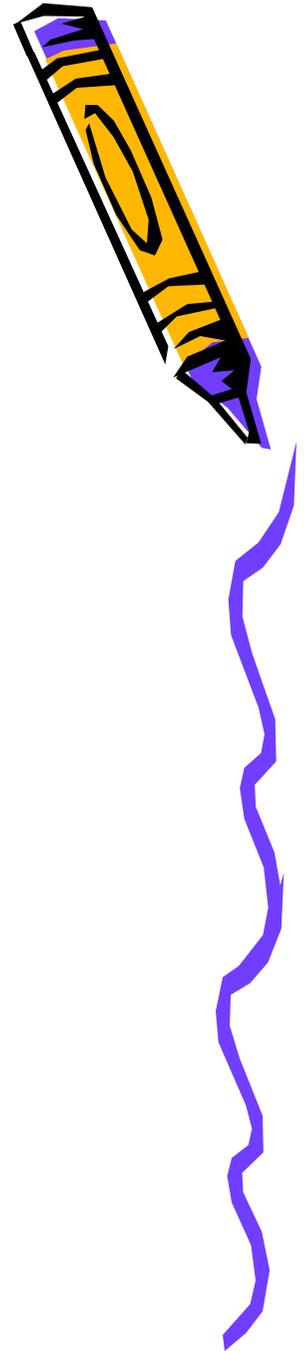
- Conclusion:
  - Open market operations do little if anything to the control of deflation.
  - If there are any, it is because they change expectations regarding future interest-rate policy.



# How Severe a Constraint is the Zero Bound?

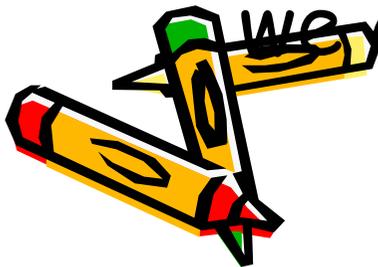
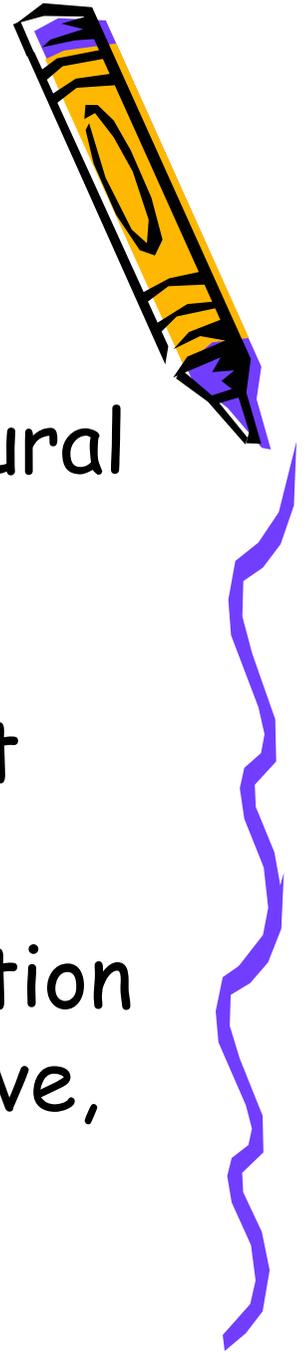
- To achieve the inflation target, a necessary condition has to be satisfied:

$$\dot{b}_t = r_t^R + \pi^*$$



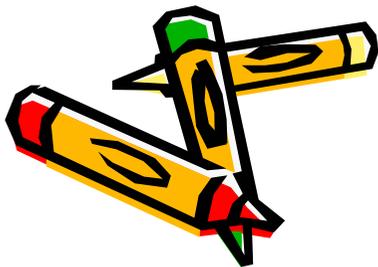
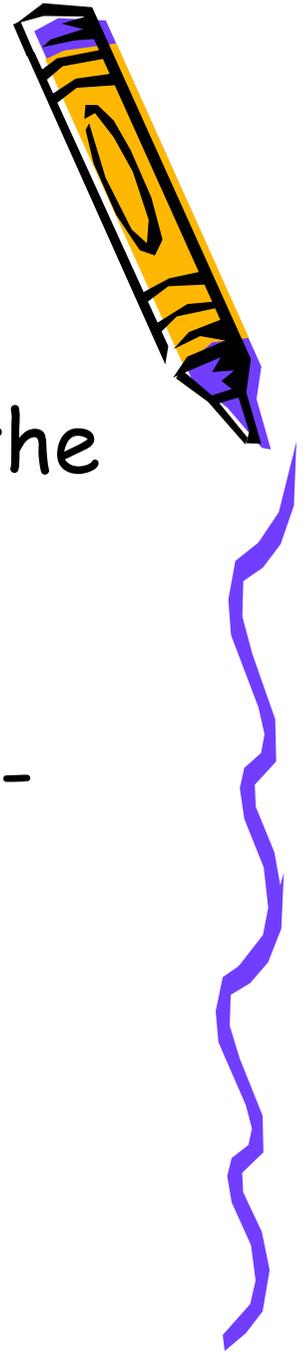
# How Severe a Constraint is the Zero Bound?

- 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.



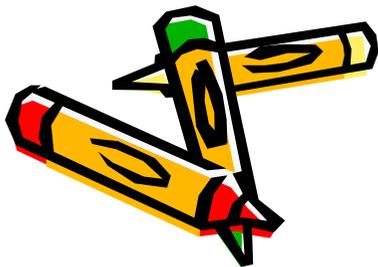
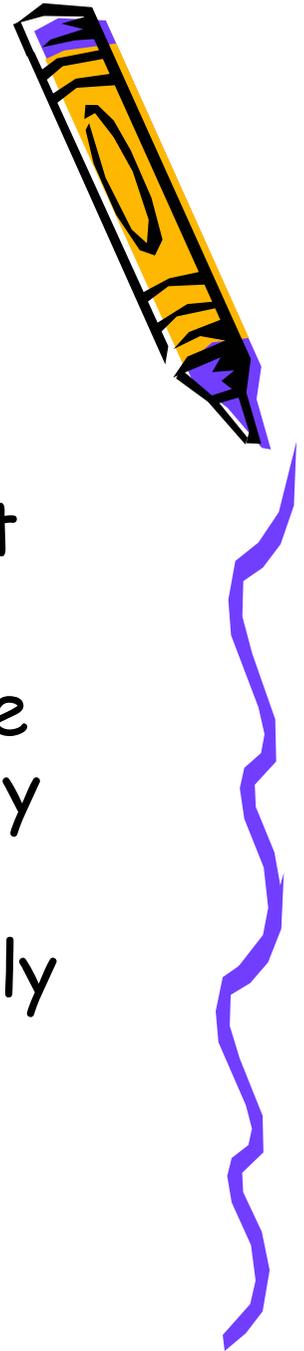
# How Severe a Constraint is the Zero Bound?

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



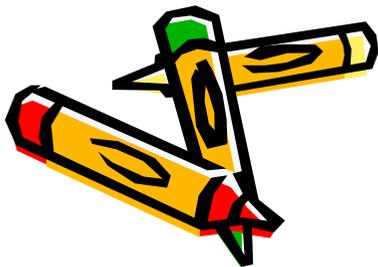
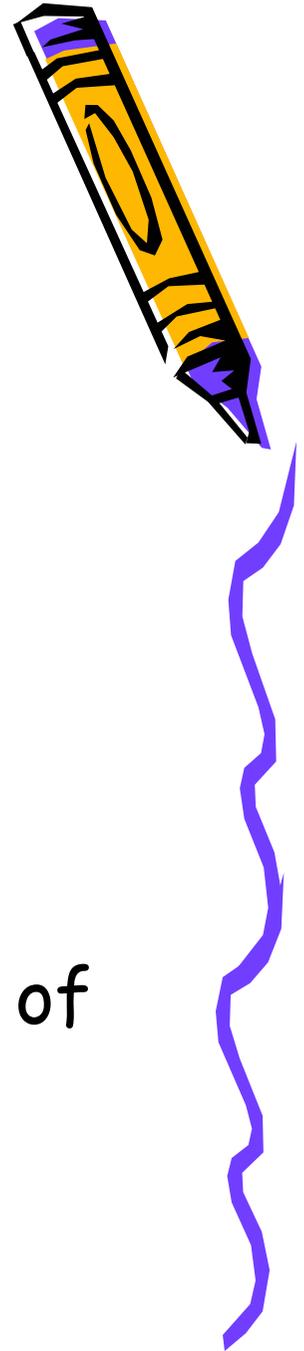
# Optimal Policy Commitment

- 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



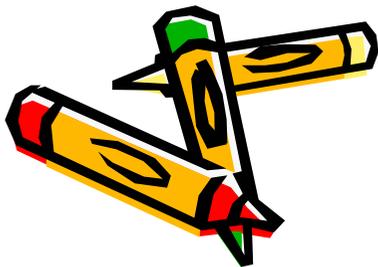
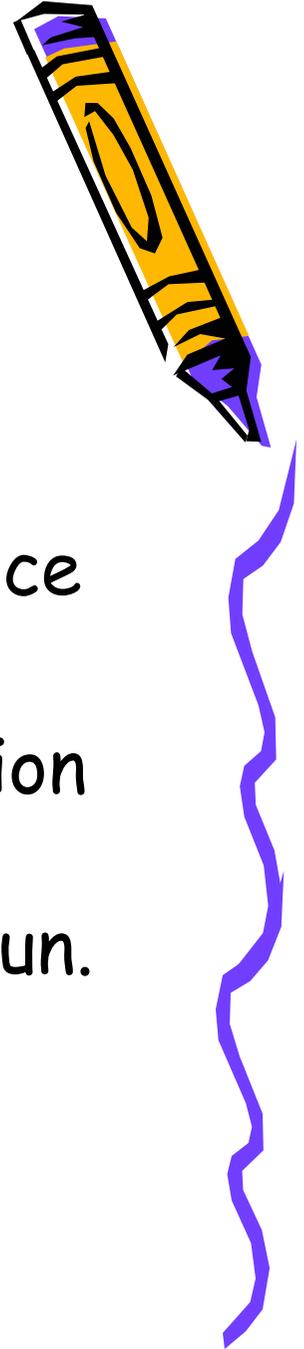
# Implementing Optimal Policy

- 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



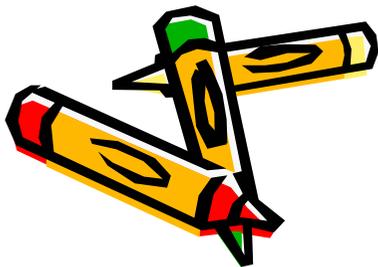
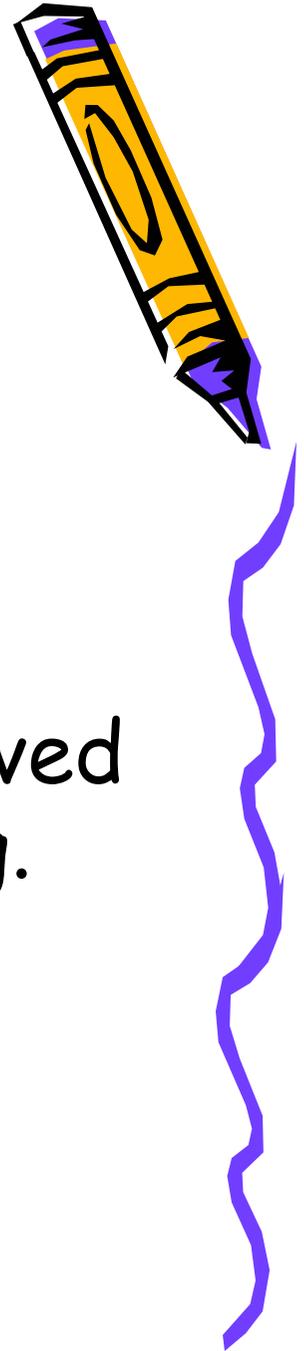
# Implementing Optimal Policy

- 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.



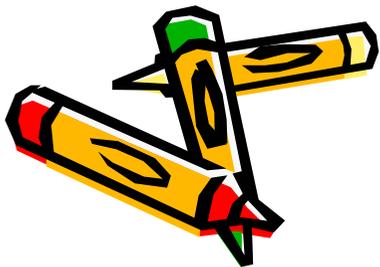
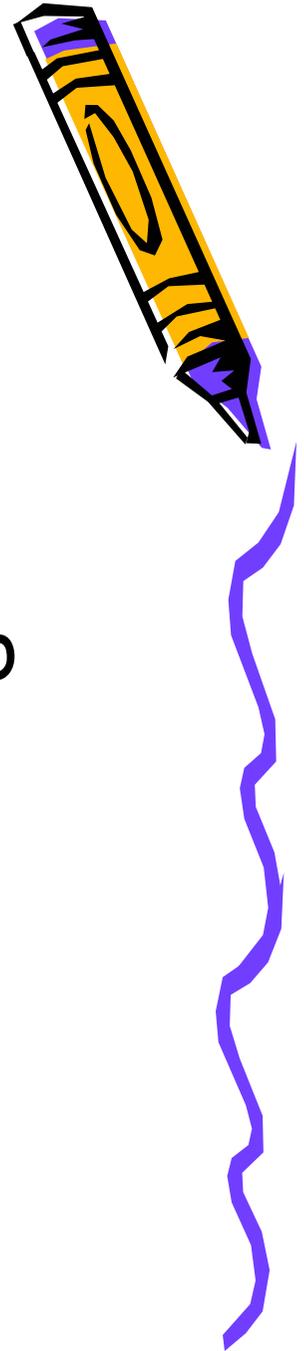
# Implementing Optimal Policy

- A simpler proposal:
- Donot 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

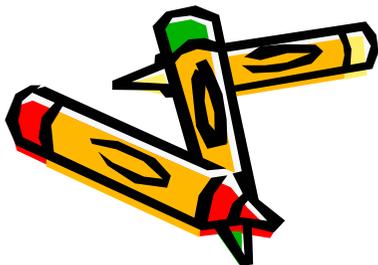
- If the actual price level would fall further and further short of the target because of the binding zero bound, nothing could be done by central bank.



# Preventing a Self-Fulfilling Deflationary Trap

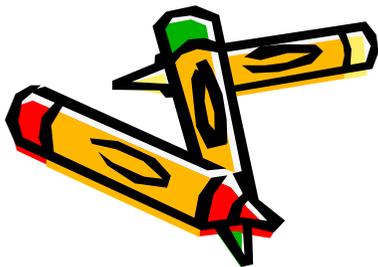
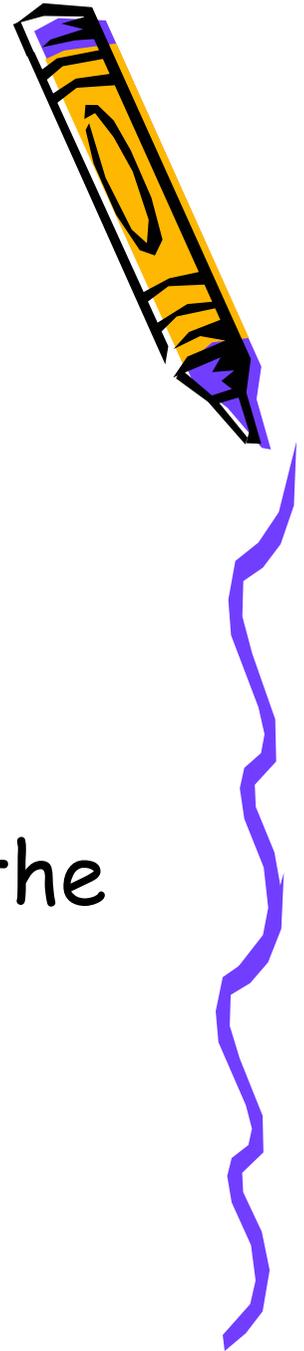
- “A commitment to supply base money in proportion to the target price level and not the actual current price level, in a period in which the zero bound prevents the centre bank from hitting its price-level target, can be desirable both as a way of ruling out self-fulfilling deflations and as a way of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

--- Gauti Eggertsson & Michael Woodford



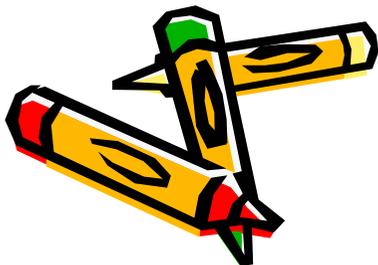
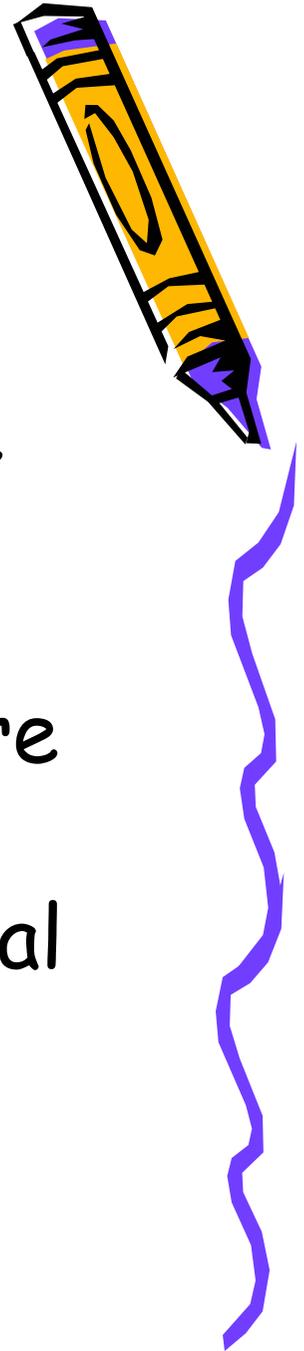
# Management of Expectations

- 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.



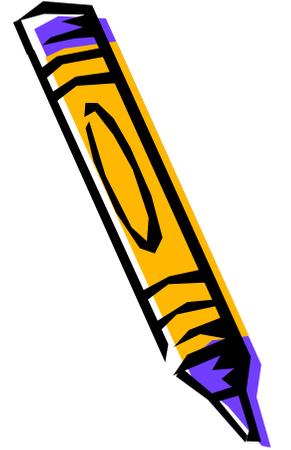
# Management of Expectations

- 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

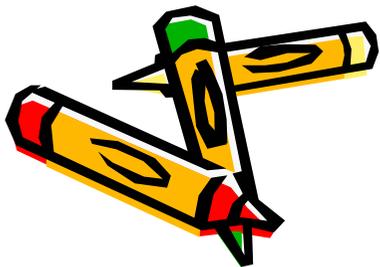
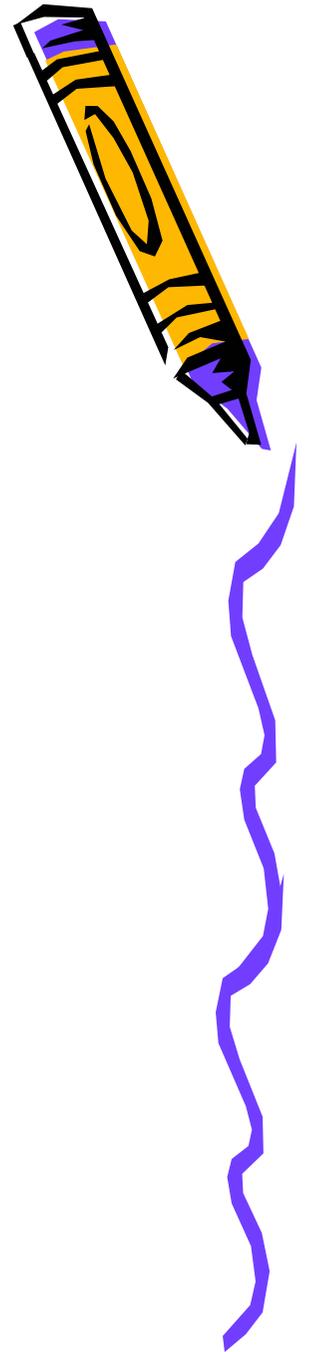


# Conclusion

- 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!



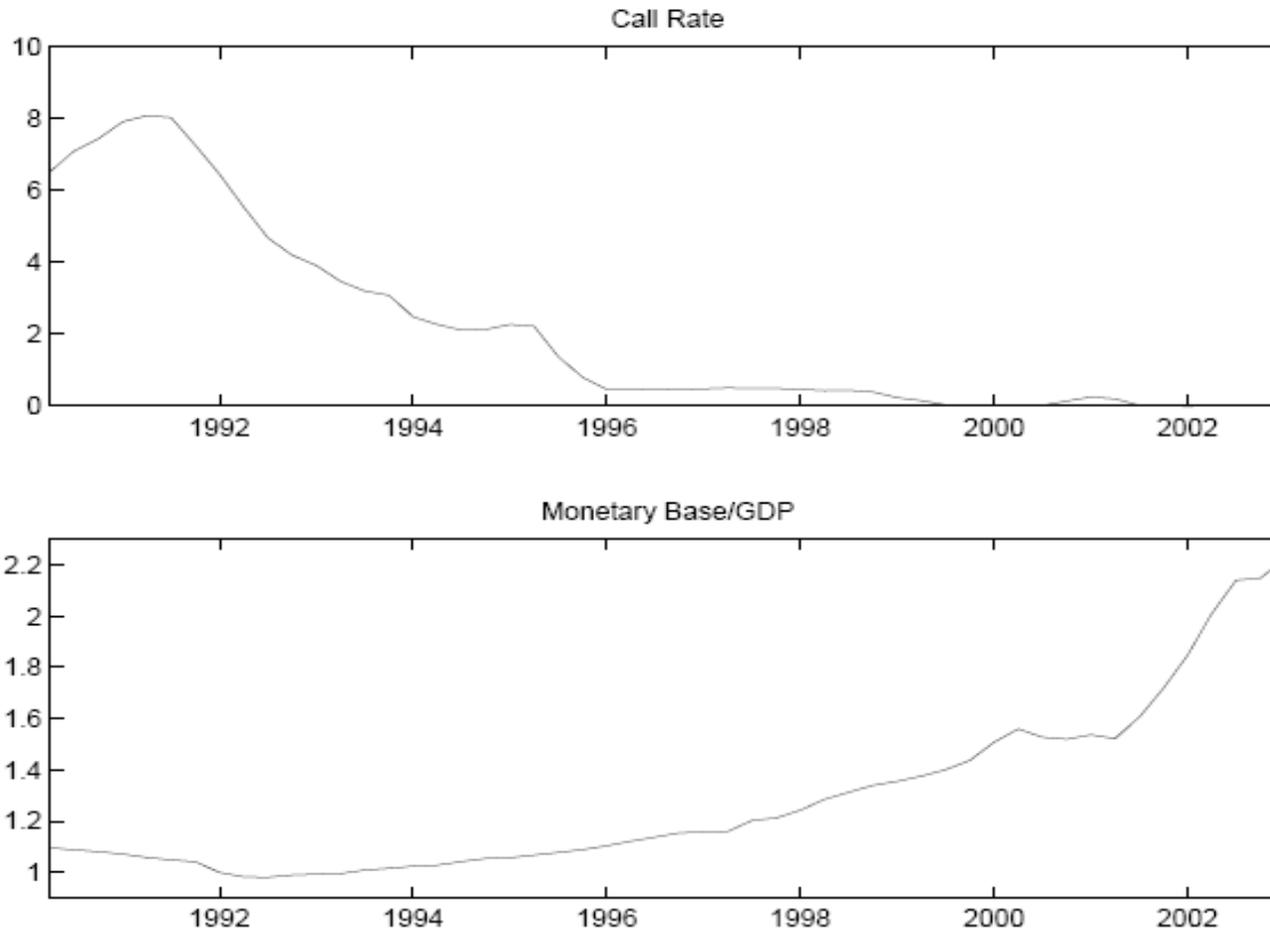


Figure 1: Evolution of the call rate on uncollateralized overnight loans in Japan, and the Japanese monetary base relative to GDP [1992 = 1.0].

[Back](#)