Discussion of

(Un)conventional Policy and the Zero Lower Bound

by Fiorella De Fiore and Oreste Tristani

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Korea University **(and the Federal Reserve Board)**

March 21, 2014
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OXFORD

INTERVENTION *to* SAVE HONG KONG

Counter-Speculation in Financial Markets

CHARLES GOODHART
AND LU DAI

Summary and Contribution

- **Unconventional Monetary Policy (or Credit Policy)**
  - **Woodford and others (+ Matthias Paustian)**

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Summary and Contribution

- **Unconventional Monetary Policy (or Credit Policy)**
  - **Woodford and others (+ Matthias Paustian)**
- **Zero Lower Bound**
  - **Woodford and many in this room (+ Taisuke Nakata)**
- **Both Issues Together (many, including 2008:12 Bluebook)**
  - **De Fiore and Tristani, in the context of Ramsey policy**
    - **Zero lower bound: standard**
    - **Financial frictions: asymmetric monitoring costs**
      - **Monitoring technology: ComB high μ high *Var*; CenB low μ low *Var***

My Comments

- **1: How to market the paper**
  - **1.1. Some semantics: “substitute” and “complement”**
  - **1.2. Some politics: Fed vs. ECB**
- **2: How to design/calibrate/solve the model**
  - **2.1. Policy mix: (normal, credit policy) ⓧ (normal, ZLB)**
  - **2.2. Solution: (LQ, nonlinear) ⓧ (deterministic, stochastic)**
- **3: How to design/define/implement central banking in 2014**
  - **Uncertainty/robustness of credit policy; CB credibility.**

1.1. Some Semantics: substitutes vs. complements

- **"credit policy as a substitute for interest rate policy"**
  - **My initial response: "Wow! What a rebellion to ECB?"**
  - **Conventional summary of unconventional policies**
    - **FRB: a substitute for interest rate policy**
    - **ECB: complementary with interest rate policy**

1.1. Some Semantics: substitutes vs. complements

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  - Conventional summary of unconventional policies
    - FRB: a substitute for interest rate policy
    - ECB: complementary with interest rate policy
- How to market this paper (to audience who took micro)
  - FRB: working as a substitute after reaching the ZLB
  - ECB: a substitute before reaching, hence complementary

1.2. Some Politics: literature survey in this paper

- **Pre-Crisis Literature**
  - **"ZLB literature which predates the financial crisis"**
  - **Eggertsson and Woodford (2003) and others before 2008**
  - **Credit policy is used, only after interest policy becomes unavailable.**
  - **"measures implemented by the Federal Reserve"**
- **Post-Crisis Literature**
  - **Curdia and Woodford (2011) and others: "complementary"**
  - **"not necessary to reach the ZLB, before implementing credit policy"**
  - **"CP could be so effective to become a substitute for standard policy."**
  - **"policy actions implemented by the ECB as of 2008"**

2.1. How to Mix the Two Policies

- **This paper: Ramsey planner with two policy tools**
  - **Assumption: perfect coordination; no model uncertainty**
    - **Pros and Cons of having the two policies under one roof**
- **Financial frictions: asymmetric monitoring technology**
  - **Commercial bank: better on average, subject to a shock**
  - **Central bank: worse, but always available**
  - **Optimal policy: a bang-bang solution for credit policy**
    - **Approximating the step function with a smooth one**
    - **Except for this and ZLB, linearize all the equations**

2.2. Accuracy of Solution Methods

Shocks \ Model	Linear-Quadratic	(Fully-)Nonlinear
Deterministic	De Fiore & Tristani	D-F
Stochastic	S-L	S-F

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- Nakata investigates the effects of uncertainty, i.e. vertically.
  - FEDS #2013-40 under optimal policy: S-F vs. D-F.
  - FEDS #2013-09 with Taylor rules: S-L vs. DF&T as well.
  - Approximation errors are significant except for Ramsey.

Figure 1: Policy Functions For Allocations and Prices: Deterministic vs. Stochastic Economies

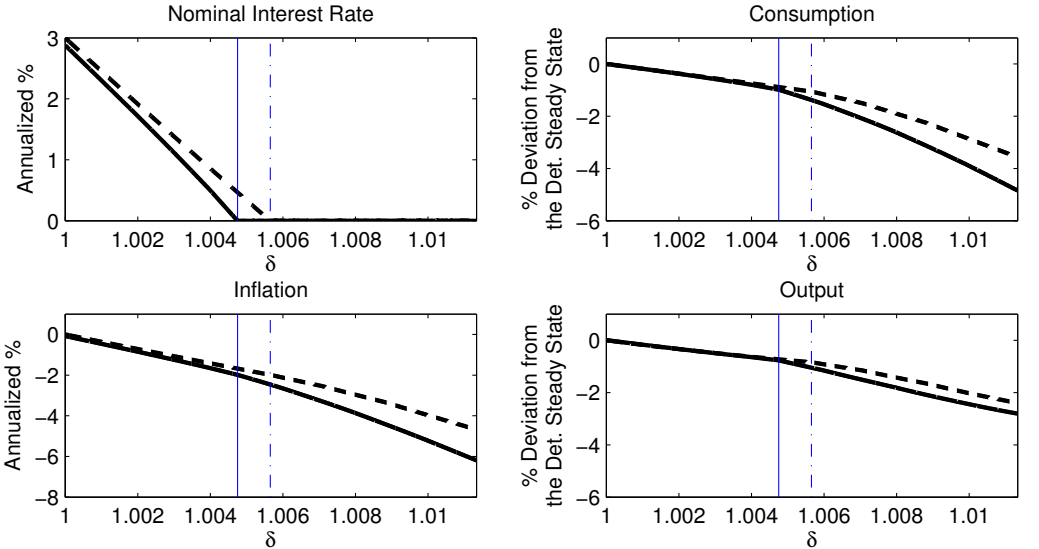
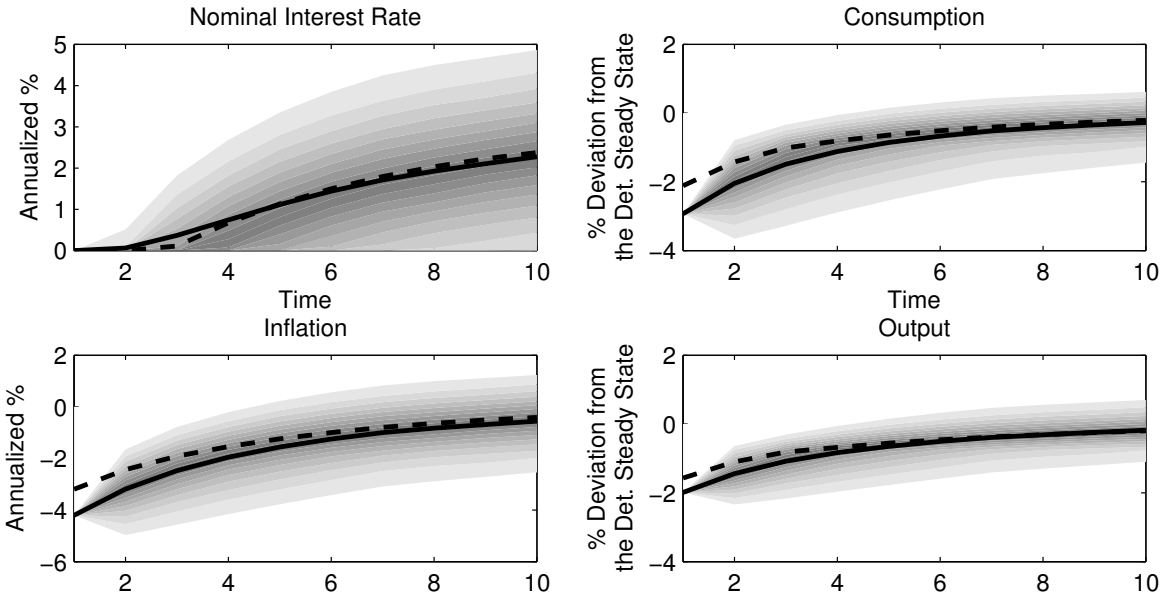


Figure 2: Impulse Response Functions: Deterministic vs. Stochastic Economies



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Using a projection method to analyze inflation bias in a micro-founded model

Gary S. Anderson *, Jinill Kim, Tack Yun

Federal Reserve Board, USA

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ABSTRACT

Since Kydland and Prescott (1977) and Barro and Gordon (1983), most studies of the problem of the inflation bias associated with discretionary monetary policy have assumed a quadratic loss function. We depart from the conventional linear-quadratic approach in favor of a projection method approach. We investigate the size of the inflation bias that arises in a microfounded nonlinear environment with Calvo price setting. The inflation bias is found to lie between 1% and 6% for a reasonable range of parameter values, when the bias is defined as the steady-state deviation of the discretionary inflation rate from the optimal inflation rate under commitment.

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- Ngo (2013): S-F vs. S-L under discretion with ZLB.

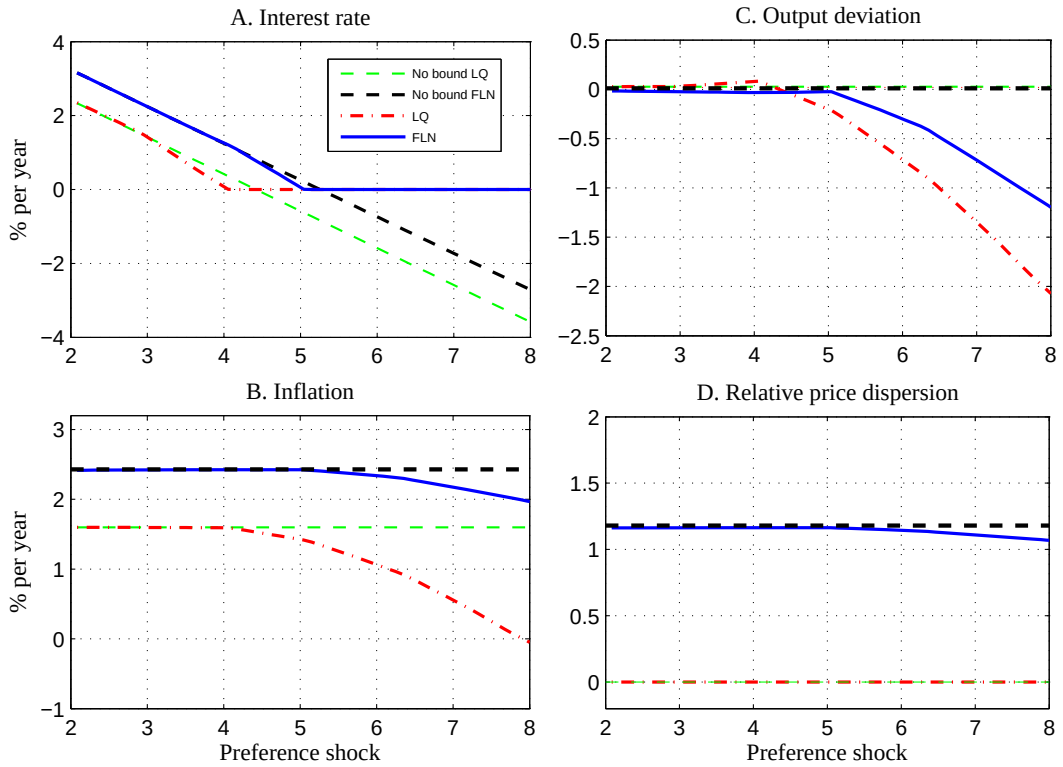

Figure 5: Optimal policy in the economy with a distorted steady state ($\Phi = 0.20$). Note that the initial relative price dispersion at the deterministic steady state ($\Delta_{t-1} = \Delta^{SS} = 1.0029$, or 1.2% per year).

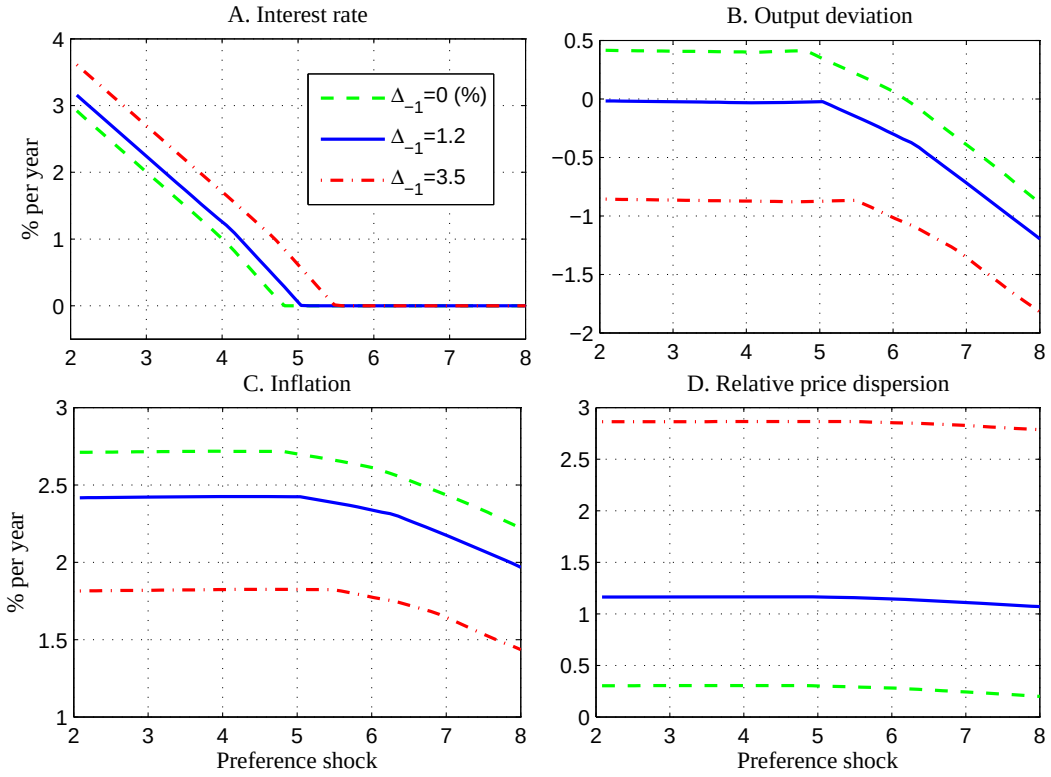

Figure 6: Optimal policy in the economy with a distorted steady state ($\Phi = 0.2$), with different values of initial relative price dispersion, in the FNL model.

3. Central Banking in 2014

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  - **How much do we know?**
  - **Uncertainty about models and shocks**
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- **Two quotes**
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    "In theory, there is no difference between theory and practice. In practice there is."

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  - **An unconventional quote (about QE)**

    “The problem with QE is it works in practice, but it doesn’t work in theory.”

3. Central Banking in 2014

- Unconventional Monetary Policy
  - How much do we know?
  - Uncertainty about models and shocks
  - Credibility of a central bank
- Two quotes
  - A conventional quote
  - An unconventional quote
- We probably know more about interest rate policy.
- A warning against optimism about credit policy

“ … we are in danger of assigning to monetary policy a larger role of than it can perform, in danger of asking it to accomplish tasks that it cannot achieve, and, as a result, in danger of preventing it from making the contribution that it is capable of making”

The Economist

AUGUST 13TH–19TH 2011

Economist.com

Anarchy in the UK

Britain's riots

Reliance, India's unloved giant

The science of false confessions

Reviving the world economy

"Stand back, I'm a central banker"

Guardians of Finance

MAKING REGULATORS WORK FOR US

James R. Barth, Gerard Caprio, Jr., and Ross Levine

DECEMBER 11, 2008

MONETARY POLICY ALTERNATIVES

PREPARED FOR THE FEDERAL OPEN MARKET COMMITTEE
BY THE STAFF OF THE BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM

(26) Chart 8 depicts optimal control simulations of the FRB/US model using the long-run staff forecast.[6] In these simulations it is assumed that, in view of potential adverse effects of very low interest rates on financial markets and institutions, the Committee would not wish to lower the target federal funds rate below 25 basis points.[7] For an inflation goal of either 1½ percent or 2 percent (the left-hand and right-hand sets of charts, respectively), the optimal control simulations prescribe a trajectory for the nominal federal funds rate that hits the lower bound early in 2009 and remains there through 2013, before tightening shortly thereafter. Absent a lower bound to short-term nominal interest rates, the optimal policy would have required a much larger reduction in the nominal federal funds rate, on the order of 5 percentage points in 2009. Under either inflation goal, the unemployment rate is significantly higher for the next few years than in the October Bluebook, rising above 8 percent at the end of 2009 and remaining above the NAIRU through 2012; the path of core inflation is 40 to 80 basis points lower than in the October Bluebook, staying below 1 percent from 2010 onwards, reflecting the much weaker current and projected state of aggregate demand, as well as recent declines in prices of oil and other commodities. These optimal control simulations illustrate how the zero lower bound limits conventional monetary policy: With inflation falling rapidly while the nominal federal funds rate is constrained to a level close to zero, the real interest rates increase, and the corresponding tightening exacerbates weakness in activity and the rise in unemployment. The Bluebook box, "Implications of Nonconventional Policies for Optimal Monetary Policy," provides an illustration of how nonstandard policy actions could alter the optimal policy path.

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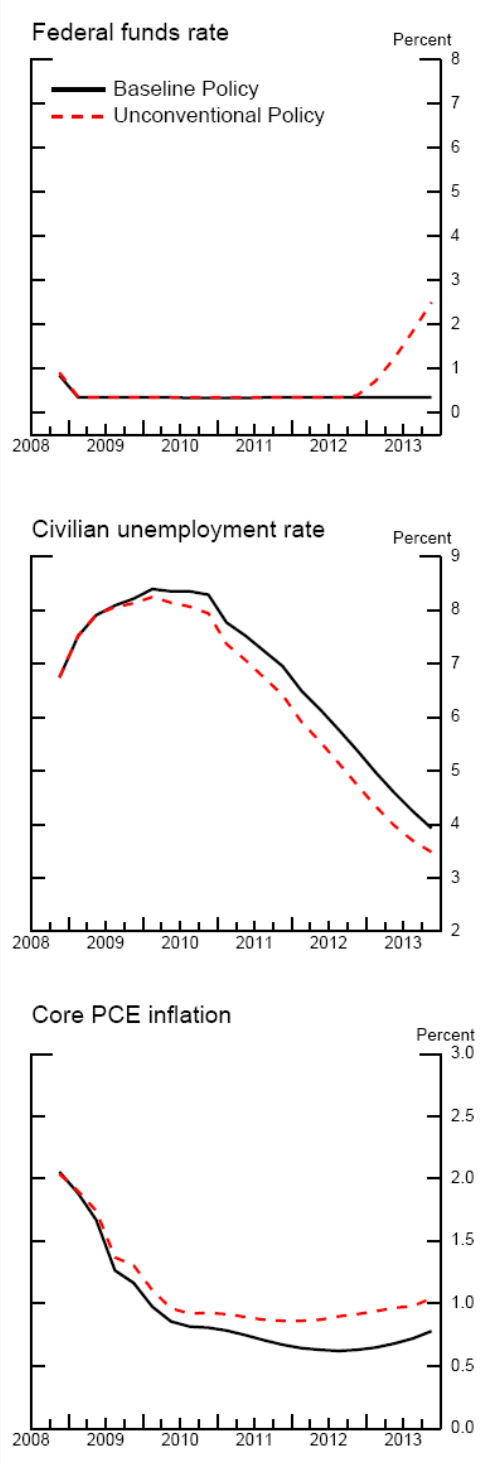
[6] In these simulations, policymakers place equal weight on keeping core PCE inflation close to a specified goal, on keeping unemployment close to the NAIRU, and on avoiding changes in the nominal funds rate.

[7] This assumption differs from the one in the previous Bluebook where the lower bound was set equal to zero. These simulations assume that the actual federal funds rate trades at the target level chosen by the Committee.

Implications of Unconventional Policies for Optimal Monetary Policy

Given the severe deterioration in the economic outlook since the last Bluebook, the optimal control simulations presented in the current Bluebook show the federal funds rate falling to its lower bound early next year and remaining there beyond 2012. These simulations presume that the channels of the monetary transmission mechanism are operating normally; but, as the solid lines in the figures illustrate, the lower bound imposes a considerable constraint on the ability of the optimal policy to provide enough stimulus to generate a robust recovery with a relatively quick return of inflation and unemployment to desired levels.



This baseline policy exercise assumes that the Federal Reserve does not undertake unconventional policies beyond those already incorporated in the Greenbook forecast. However, the exercise can be revised to take account of the estimated effects of a variety of unconventional monetary policy tools, including quantitative easing, targeted purchases of specific securities, and communication strategies aimed at influencing policy expectations. Combining conventional optimal policy adjustments with these nontraditional policy responses should yield better outcomes for activity and inflation.[1]

To illustrate such a possibility, the dashed red lines in the Figures show the effects on the optimal policy path and Economic outcomes of assuming that the Federal Reserve engages in more sustained nontraditional policy actions. In this particular simulation, it is assumed that the implementation of such a policy package would lower the level of nominal long-term interest rates —including Treasury rates, mortgage rates, and corporate bond rates— by about 100 basis points from 2009 to 2012, and 50 basis points in 2013, relative to what would occur under conventional optimal policy.

[1] Note 21 in the materials on the zero bound that were sent to the Committee on December 5 ("Gauging the Macro Stimulus from Monetary Policy Communications and Other Tools") provides a quantitative assessment of unconventional measures, including the effects of fiscal policy actions.

Implications of Unconventional Policies for Optimal Monetary Policy (Cont.)

The reduction in long-term rates boosts aggregate spending directly; it also provides further indirect stimulus through higher corporate equity prices and a lower foreign exchange value of the dollar. In response, the unemployment rate runs ¼ to ½ percentage point below its path under conventional policy, and inflation does not fall quite as much. These more favorable macroeconomic conditions, in turn, allow optimal monetary policy to begin to tighten at the end of 2012.

The economic effects of this particular example of unconventional policies are modest, but the estimates are subject to considerable uncertainty. First, it is possible that aggressive actions could, by easing investor concerns about the outlook, lower long-term private interest rates by even more than 100 basis points, although the degree of substitutability across Treasury and private securities is uncertain and smaller effects are also possible. Second, these results are based on a model in which only financial variables respond directly to announcements about future policies; larger stimulative effects might be obtained if the expectations influencing spending decisions and wage-price setting, and not just those influencing financial markets, also responded fully to the implications of the nontraditional policy actions for future economic conditions. Third, more pronounced results might be possible if the nontraditional policy actions were paired with a major fiscal stimulus.

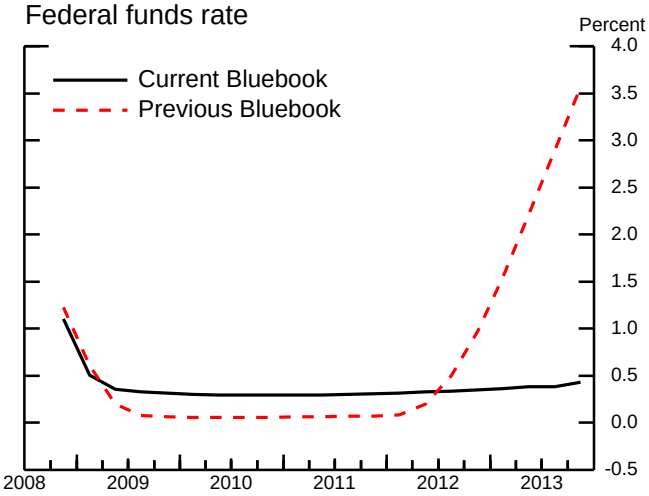
Chart 8

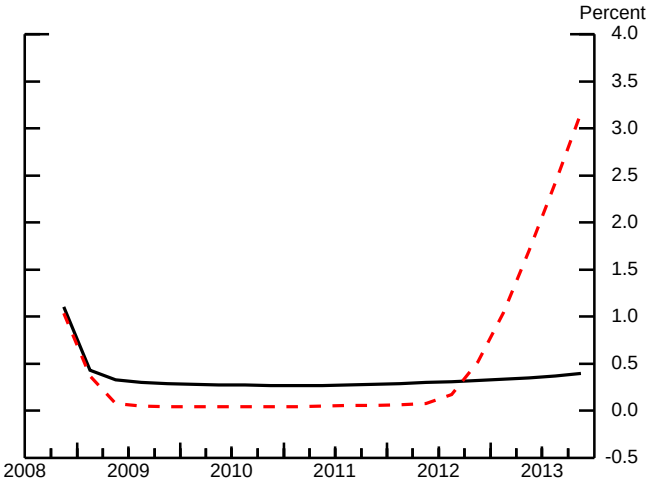
Optimal Policy Under Alternative Inflation Goals

1½ Percent Inflation Goal

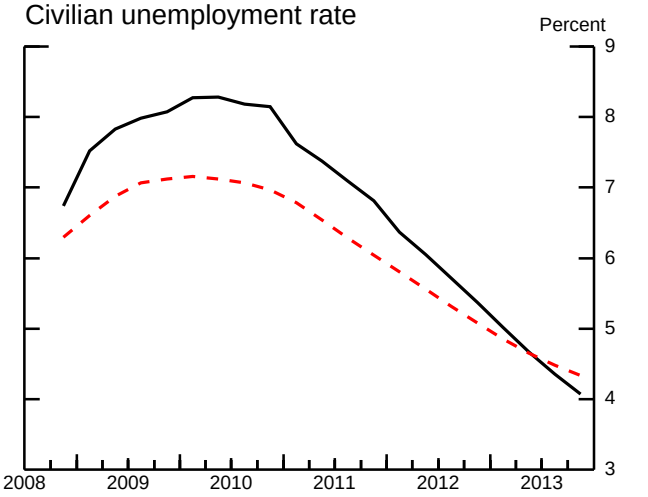
2 Percent Inflation Goal

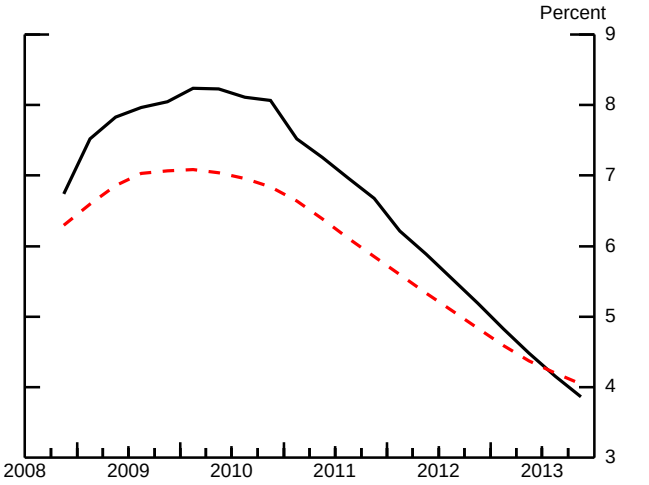
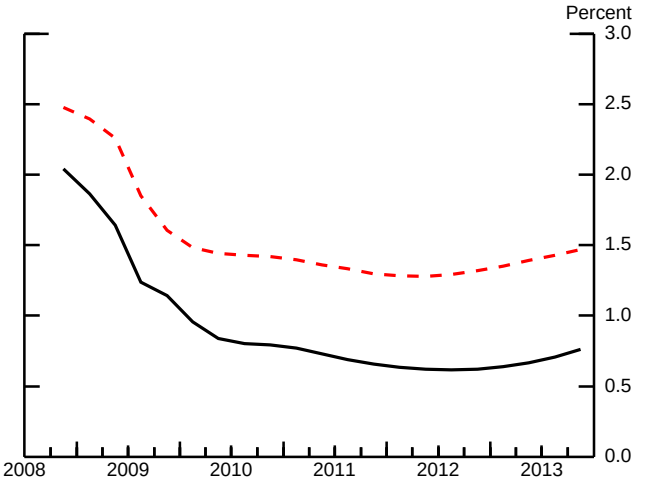
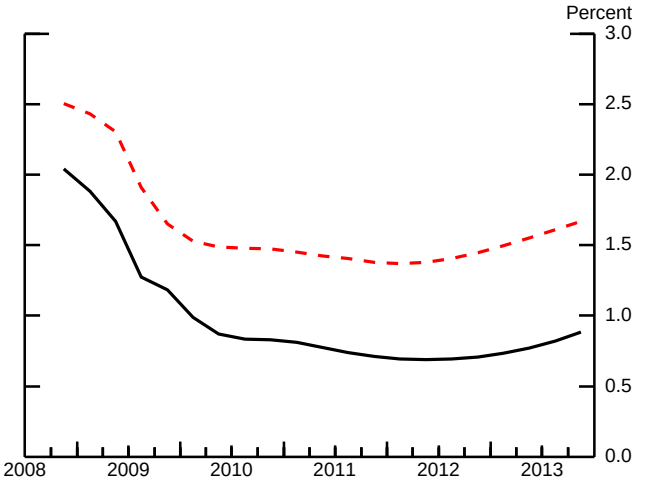
Federal funds rate





Civilian unemployment rate





Core PCE inflation