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On the function of the zero interest rate commitment: Monetary policy rules in the presence of the zero lower bound on interest rates [☆]

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We analyze the monetary policy rules which could be implemented in practice under the zero interest rate constraint. Based on the estimated small structural model for Japanese economy, we investigate which policy rule is superior using stochastic simulations. We modify the estimated Taylor-type rule variously by adding a commitment whereby the zero rate policy will be maintained until the inflation rate rises beyond a specific level. We find that such policy rules can be effective if the commitment is set appropriately. We also find that a nonlinear policy rule incorporating preemptive easing can perform well, mostly without any explicit commitment. *J. Japanese Int. Economies* **22** (1) (2008) 34–67. Monetary Affairs Department, Bank of Japan, Chuo-ku, Tokyo 103-8660, Japan.

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1. Introduction

Various proposals have been made regarding monetary policy in the presence of the zero lower bound on nominal interest rates. Since the effect of monetary policy declines when facing this constraint, there is a widely shared belief among economists that (1) preemptive monetary easing is important to minimize the likelihood that interest rates will fall to zero, and (2) in cases when interest rates have fallen to zero, “expectations management” which acts on the formation of private-sector expectations toward future monetary policy is important. While macroeconomic theory has played an important role in drawing these general conclusions, there is still room for developing further analyses for policy proposals on the more specific questions of (1) what degree of preemptive monetary easing is appropriate, and (2) how expectations management should be implemented.

A number of authors have studied the issue of preemptive monetary easing. For example, in three papers that assumed a purely forward-looking structural model, Adam and Billi (2004a) derived the optimal commitment policy, and Nakov (2004) and Adam and Billi (2004b) derived the optimal discretionary policy. Orphanides and Wieland (2000) and Kato and Nishiyama (2005) derived the optimal discretionary policy under a partially forward-looking model and a purely backward-looking model, respectively. To better depict the actual conditions of the economy, our paper conducts analyses assuming a “hybrid” structural model that accommodates both forward- and backward-looking agents in the IS and AS curves, and seeks optimal policy under a simple policy rule framework, taking into account a possibility of adopting a zero interest rate commitment.

Prior research on the importance of expectations management includes Jung et al. (2005) and Eggertsson and Woodford (2003), of which the latter advocates a kind of price level targeting as the optimal targeting rule for a purely forward-looking structural model. Since the structure in the actual economy incorporates various uncertainties, however, there seem to be doubts regarding the feasibility and efficacy of implementing such a specific targeting policy in practice. This leaves the question of what type of options exist for practical expectations management when facing the zero lower bound on interest rates. Analyzing the function of Japan’s “policy duration commitment” to maintaining the zero interest rate, which is referred to herein as the “zero interest rate commitment,” is adopted in this paper to examine the practical options.¹

¹ On March 19, 2001 the Bank of Japan (BOJ) announced its decision to introduce and implement the so-called “quantitative easing policy.” It has consisted of the maintaining of an ample liquidity supply by using the current account balances (CABs) at the BOJ as the operating policy target and the commitment to maintain ample liquidity provision until the rate of change of the core CPI (nationwide, excluding perishables) becomes positive on a sustained basis. The BOJ also announced that it was ready to increase the amount of purchases of long-term government bonds in order to meet the target on the CABs. It was projected that increasing the CAB targets beyond the level of the required reserve would normally keep the call rate near 0%. Moreover, the commitment regarding future liquidity provision was further clarified on October 10, 2003 with the BOJ committing itself to continue providing ample liquidity until both actual and expected inflation becomes positive. See <http://www.boj.or.jp> for further details. On March 9, 2006, the BOJ decided to end the quantitative easing policy, based on the judgment that the conditions in the commitment were satisfied.

Looking back prior to the adoption of this quantitative monetary easing policy, on February 12, 1999 the BOJ announced its decision to guide the uncollateralized overnight call rate, which was then the main target of its money market operations, close to zero. This is the so-called “zero interest rate policy.” Thereafter, at a regular press conference in April 1999 the BOJ Governor announced that the Bank would continue with the current policy until deflationary concerns were dispelled.

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