The Quarterly Review of Economics and Finance 49 (2009) 784–797

Contents lists available at ScienceDirect

The Quarterly Review of Economics and Finance

journal homepage: www.elsevier.com/locate/qref

What is the best way to impede a central bank?

Peter G. VanderHart*

Department of Economics, Bowling Green State University, Bowling Green, OH 43403, United States

ARTICLE INFO

Article history:
Received 2 October 2007
Received in revised form 20 May 2008
Accepted 25 September 2008
Available online 17 October 2008

JEL classification:
E52
E58

Keywords:
Monetary policy
Commitment
Discretion

ABSTRACT

Recent work has found several ways of restricting central bank behavior to achieve much of the gain of commitment over discretion. This paper compares three such impediments: A quadratic penalty on interest rate changes, a fixed penalty on any rate change, and forced infrequency of rate change. All three achieve significant improvement over discretion, and often come close to interest rate rule commitment. The fixed penalty is frequently the best performing restriction, although the quadratic penalty does best in certain alternative parameterizations. Combinations are found to provide no improvement over the individual impediments alone.

1. Introduction

It is widely accepted in monetary economics that a committed central bank will outperform a central bank that uses its discretion in each period. Because most nations do not have institutional structures that allow central banks to credibly commit to a policy rule, most authors conclude that central banks act in a discretionary manner, and that this generates an inferior outcome. And yet it appears as though many central banks have been able to achieve very good economic performance (at least in recent years), without the benefit of what most economists would recognize as a credible commitment. The last few decades in most developed nations have been characterized by low and stable inflation, achieved in large part with financial markets correctly anticipating long-lasting policy actions, exactly as one would expect under commitment. It is interesting to ask how this has been achieved, again in the absence of what most would call a credible commitment.

* Tel.: +1 419 372 8070; fax: +1 419 372 1557.
E-mail address: pvander@bgsu.edu.

1062-9769/$ – see front matter
doi:10.1016/j.qref.2008.09.004

Models in the commitment vs. discretion literature almost always have the property that the central bank is free to vary its policy instrument as much as it would like in every period. If these models were true, one would expect to see some movement in the policy instrument in every period, with large immediate movements in response to economic shocks. Neither of these properties are found in the actual behavior of central banks: Since 1990 the Federal Reserve has made a change in its target for the Federal Funds rate on average only once every 100 days, and on four occasions has gone more than ten months without a change; When changes do happen, they usually happen during the regularly scheduled FOMC meetings; and they are more likely to be accomplished in a series of 25 or 50 basis point moves, rather than all at once (Federal Reserve Bank of New York, 2008). Similar behavior can be observed for other important central banks, such as the Bank of Canada, the Bank of England, and the European Central Bank. This behavior seems to suggest that central banks do not act the way we typically model them: They generally appear to be unable or at least reluctant to make frequent or large changes in their policy interest rate. In other words, they appear to face some sort of impediment to changing interest rates.

A few authors have suggested that such limitations may actually help a discretionary central bank achieve macroeconomic performance close to that of a committed central bank. The suggested impediments include the Woodford's (2003b) quadratic penalty on interest rate changes, Mirzoev's (2004) restrictions on the frequency of interest rate changes, and Eijffinger, Schaling, and Verhagen's (1999) fixed penalty (or "menu cost") for any interest rate change. Each of these have been shown to substantially increase the performance of a discretionary central bank, because they create an avenue by which the current actions of a discretionary bank can have some influence on expectations. Moreover, each of these hindrances is consistent with certain aspects of real-world central bank behavior. The purpose of this paper is to determine which of the proposed impediments works the best, and to explore whether combinations of the restrictions can achieve further improvements.

2. Previous work

It has long been noted that in many situations a central bank that can commit to a policy rule will do a better job than one that uses its discretion each period. Early work (Barro & Gordon, 1983; Fischer, 1990; Kydland & Prescott, 1977) emphasized that a committed bank could avoid the short run temptation to hold output above its natural level (inflationary bias). More recent work (Clarida, Gali, & Gertler, 1999 (CGG); Woodford, 2003a, 2003b) points out that even in the absence of this motive, a committed central bank faces a better short-ran tradeoff between inflation and output than a discretionary bank does (stabilization bias).

Each of these biases are generated by the inability of a discretionary central bank to affect future expectations. A discretionary bank essentially reoptimizes each period. Private agents, knowing this, realize that whatever the bank does today will have no effect on what it does tomorrow. Thus current actions of the bank can have no effect on the expectations of private agents. If we assume that current inflation and output depend crucially on expectations of what they will be in the future (as they will in models that are derived from firm and household optimization models), then a discretionary bank lacks a potentially valuable tool: It cannot hope to influence the current state of the economy via expectations, because current policy actions cannot change expectations. A committed central bank does not suffer from this problem. When it initially sets (and subsequently sticks to) a policy rule, it essentially determines the expectations of private agents. If the bank takes the effect it has on expectations into account when designing its rule, it can achieve a much better result than a bank that does not have any influence on expectations.

Several authors have noted an unusual way to at least partially solve the problem faced by a discretionary central bank. If the bank's current actions are limited in some way, so that current policy is similar to what it was in the past, then the bank may be able to have some influence on expectations. This occurs because any policy action taken in the current period will be hard to change in the future. Private agents will recognize this, and thus a current action will influence their expectations. If the central bank can take advantage of this fact when setting current policy, it may be able to achieve a result that is superior to the typical discretionary result.