



The role of liquid government bonds in the great transformation of American monetary policy[☆]

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ABSTRACT

A fundamental shift in monetary policy occurred around 1980: the Fed went from a “passive” policy to an “active” policy. We study a model in which government bonds provide transactions services. We present two calibrations of our model, using pre- and post-1980 data. We show that estimates of pre- and post-1980 policy rules all lie within our determinacy regions. But, the pre-1980 policy was a very bad monetary policy, even if it avoided sunspot equilibria. Model simulations suggest that household welfare would have increased by 3.3 percent of permanent consumption in this period under an active policy.

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1. Introduction

A profound change in monetary policy is generally thought to have occurred in the United States around 1980: the Fed became much more responsive to inflation with the arrival of Paul Volcker. The pre-Volcker policy has been strongly criticized by Clarida et al. (2000) and many others who argued that the policy violated the Taylor principle, raising the specter of in-determinacy and sunspot equilibria, and indeed inflation was volatile during the 1970s. However, Leeper (1991) and others argued that indeterminacy problems need not arise when monetary policy violates the Taylor principle if that monetary policy is accompanied by an appropriate fiscal policy; that is, the Fiscal Theory of the Price Level (FTPL) can explain away the possibility of sunspot equilibria in the 1970s.

Here, we offer an alternative to both sunspots and the FTPL. We assume that government bonds have a liquidity value and are an imperfect substitute for money, and we show that this fact in and of itself can rule out sunspot equilibria during the pre-Volcker era. There is therefore no need to resort to the FTPL if one doubts the likelihood of sunspot equilibria. Our approach has several advantages over the FTPL as an explanation of the inflationary 1970s. In addition to avoiding the many controversies surrounding the FTPL, our approach eliminates a thorny coordination problem that arises with the FTPL's explanation.¹

But does that mean that Fed's policy in the pre-Volcker period has gotten a bum rap, that it was not so bad after all? Our model suggests that the answer to that question is emphatically no. The weak response to inflation may not have led to

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¹ Canzoneri et al. (2001) argue that the FTPL does not provide a plausible explanation of the surplus and debt dynamics observed in US data. Canzoneri et al. (forthcoming) discuss in some detail the FTPL and many of the controversies it has generated.

sunspot equilibria, but it was prone to in-inflationary responses to the supply shocks of the 1970s, and according to our model, it was disastrous for welfare. Our simulations suggest that a stronger policy would have raised household welfare by the equivalent of three and a third percent of permanent consumption during the pre-Volcker era.

It is helpful at this point to be more specific about the theoretical and empirical literature that provides the background for our paper. Using [Leeper's \(1991\)](#) terminology, Fed's interest rate policy was "passive" – or violated the Taylor Principle – prior to 1980; then it became "active" – or satisfied the Taylor Principle – during the Volcker–Greenspan era.² [Clarida et al. \(2000\)](#) and [Lubik and Schorfheide \(2004\)](#) documented this shift in monetary policy and expressed the conventional view of its import: the pre-Volcker policy was bad monetary policy because conventional models implied that the price level would not be pinned down, raising the specter of sunspot equilibria.

The FTPL challenged the conventional view's assumption (often implicit) that fiscal policy is "passive"; that is, when the public debt increases, the primary surplus rises by enough to stabilize debt dynamics. [Leeper \(1991\)](#) raised the possibility that fiscal policy might have been "active" in the pre-Volcker era; that is, the response might have been insufficient to stabilize debt dynamics. He (and the literature that followed) studied the combinations of monetary and fiscal policies that would achieve a unique, locally stable, solution for inflation. Generally speaking, an inactive monetary policy has to be paired with an active fiscal policy, and an active monetary policy has to be paired with an inactive fiscal policy.³ Pairing a passive monetary policy with a passive fiscal policy – the conventional view of the pre-Volcker period – would generally lead to sunspot equilibria. On the other hand, if the passive monetary policy was paired with an active fiscal policy, then the sunspot equilibria would be eliminated. But, when monetary policy shifted from passive to active around 1980, fiscal policy would have had to shift from active to passive, or explosive solutions would have been possible. This is the FTPL's coordination problem.⁴

In [Canzoneri and Diba \(2005\)](#), we showed that both active and passive monetary policies can achieve price determinacy, even if fiscal policy is passive, as long as government bonds provide transactions services.⁵ Fiscal deficits increase total transactions balances, providing a new link between inflation and debt dynamics.⁶ This dramatically changes the combinations of monetary and fiscal policies that result in a unique, locally stable, equilibrium. In this paper, we complete the analysis of the 1980 transformation in monetary policy. We present two calibrations of our model, using pre- and post-1980 datasets, and we illustrate the range of monetary and fiscal policies that would have achieved price determinacy. [Lubik and Schorfheide \(2004\)](#) estimates of the pre- and post-1980 interest rate rules and [Bohn's \(1998, 2004\)](#) estimates of passive fiscal reaction functions fall within our determinacy regions. This is why we say that there appears to have been no need for fiscal policy to have shifted in 1980.

Before we begin our analysis, we should mention some alternative views and approaches to the issues we discuss here. [Orphanides \(2004\)](#) finds that monetary policy in the pre-Volcker period did not actually violate the Taylor Principle; if one accepts his results, there is no indeterminacy problem to be explained. [Galí et al. \(2004\)](#) and [Bilbiie and Straub \(2006\)](#) add "rule of thumb" households to their models and find that, if there are enough of them, the Taylor Principle can be violated without creating an indeterminacy problem.⁷ [Bilbiie and Straub \(2006\)](#) find that a passive monetary policy is optimal in their model when there are enough "rule of thumb" households. [Woodford \(2001\)](#), using the FTPL, argues that an interest rate peg is a good characterization of US policy between 1942 and the Treasury-Fed "Accord" of 1951, and he seems to think that this was a reasonable policy at that time; he says that "This sort of relationship between a central bank and the treasury is not uncommon in wartime, ... [and in other] cases where the perceived constraints on fiscal policy have been similarly severe."

The rest of the paper is organized as follows: In Section 2, we outline our model, and we present our two calibrations of it: one to the 1970s and the other to the Volcker–Greenspan era. In Section 3, we graph the policy regions for stable equilibria, sunspot equilibria and explosive solutions under the two calibrations. The regions have shifted over time, but as noted above they suggest that the systematic part of fiscal policy need not have changed when monetary policy shifted from passive to active. In Section 4, we argue that the passive policy of the pre-Volcker period was indeed bad monetary policy, even if it did avoid sunspot equilibria. Finally, Section 5 concludes with some caveats and some suggestions for future research.

2. The model and its pre- and post-1980 calibrations

We assume a standard NNS environment – with fixed, firm specific capital, Calvo price setting, and flexible wages – except for the fact that we allow government bonds to be an imperfect substitute for money.⁸ In previous work, [Canzoneri et al.](#),

² The Taylor Principle holds that the nominal interest rate should be raised by more than any increase in observed inflation.

³ The discussion here is a bit loose. The monetary and fiscal policies that do, and do not, result in price determinacy can depend on structural features in the model, such as the degree of price flexibility. But, for most standard New–Keynesian models, the generalizations in the text hold.

⁴ More recently, [Davig and Leeper \(2006, 2009\)](#) have argued that the coordination problem is much less severe than [Leeper \(1991\)](#) suggests.

⁵ [Linnemann and Schabert \(2009, 2010\)](#) develop this point further and discuss other implications of letting bonds provide transactions services.

⁶ At a more fundamental level, [Canzoneri and Diba \(2005\)](#) argued that a non-Ricardian element has to be added to conventional models to solve the problem of price indeterminacy. The FTPL does that in one way; we do it in an alternative way that does not rely on active fiscal policies. See also [Canzoneri et al. \(forthcoming\)](#) for a fuller discussion.

⁷ Rule of thumb agents do not participate in asset markets; they simply consume all of their income. [Galí et al. \(2004\)](#) and [Bilbiie and Straub \(2006\)](#) put expected inflation in their interest rate rules. [Galí et al. \(2004\)](#) find that the Taylor Principle is a necessary condition for determinacy when current, or observed, inflation appears in the interest rate rule.

⁸ This basic premise should not be controversial. US Treasuries clearly facilitate transactions in a number of ways: they serve as collateral in many financial markets, banks hold them to manage the liquidity of their portfolios, and individuals hold them in money market accounts that offer checking services.

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