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The comovement between monetary and fiscal policy instruments during the post-war period in the U.S.☆

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Abstract

This paper empirically studies the dynamic relationship between monetary and fiscal policies by analyzing the comovements between the Fed funds rate and the primary deficit/output ratio. Simple economic thinking establishes that a negative correlation between Fed rate and deficit arises whenever the two policy authorities share a common stabilization objective. However, when budget balancing concerns lead to a drastic deficit reduction the Fed may reduce the Fed rate in order to smooth the impact of fiscal policy, which results in a positive correlation between these two policy instruments. The empirical results show (i) a significant negative comovement between Fed rate and deficit and (ii) that deficit and output gap Granger-cause the Fed funds rate during the post-Volcker era, but the opposite is not true.

JEL classification: C32; E52; E62
Keywords: Fed rate; Deficit; Comovement; Switching regimes

1. Introduction

Some economists may have the perception that the Federal Reserve tends to counteract aggregate demand variations caused by deficit changes (see, for instance, DeLong, 2003 p.384) as a way of smoothing the impact of fiscal policy. For instance, President Reagan's tax cut was followed by a restrictive monetary policy. In this scenario, one would expect a positive correlation between the Fed funds rate (the monetary policy instrument) and the primary deficit-output ratio (the fiscal instrument). However, it is not hard to imagine other scenarios where the two economic policy authorities share a common stabilization objective and thus the Fed rate and the primary deficit show a negative correlation. This would be the case in a recession (expansion) where the monetary authority may coordinate with the

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fiscal authority for a fall (rise) of the Fed rate with an increase (decrease) of the primary deficit-output ratio (which we will refer to hereafter as "the deficit"). A similar argument can be established when the two authorities fight inflationary pressures together.

At the heart of the dynamic relationship between the two policy instruments are the causes leading to the shifts in both monetary and fiscal policies during the post-war period in the U.S. Many macroeconomists believe that U.S. monetary policy changed to a strong anti-inflationary regime when Paul Volcker became Fed chairman in late 1979.[1] Similarly, as documented by Davig, Leeper, and Chung (2004), fiscal policy has exhibited pendulum swings where periods characterized by tight fiscal policy aiming at budget balancing (i.e. a "passive" fiscal policy) are followed by periods characterized by a countercyclical fiscal policy (i.e. an "active" stabilizing fiscal policy).[2]

This paper empirically investigates the dynamic relationship between Fed rate and deficit. This analysis will shed light on three related sets of questions: (i) Is there a significant comovement between Fed rate and deficit? Do monetary and fiscal instruments move together in pursuit of a common stabilization objective? (ii) Is the comovement between monetary and fiscal instruments stable over time? Does a "passive" fiscal policy last for long? (iii) Is there evidence of a causal relationship between Fed rate and deficit? Is the deficit Granger-causing the Fed rate? We believe that the answers to these questions are important because they can help to evaluate and design dynamic macroeconomic models for analyzing issues of monetary and fiscal policy coordination.

Some examples of recent literature concerned with related issues on coordination and switching of fiscal and monetary policies follow. Using a theoretical approach, Davig et al. (2004) study how the presence of switching-regimes in fiscal and monetary policies changes the effects of economic policy. At the empirical level, by using an augmented VAR specification, Favero and Monacelli (2003) show evidence of monetary and fiscal policy regime shifts in the U.S. and of how the analysis of a monetary-fiscal policy mix helps to explain U.S. inflation dynamics.

This paper follows three empirical approaches. First, we compute *rolling* measures of the unconditional correlation coefficient between Fed rate and deficit for three different amplitudes (five, ten and twenty year windows). Roughly speaking, as the window becomes wider (narrower) the rolling measure of the unconditional correlation coefficient gives more weight to the low (high) frequency components of the time series. The analysis of rolling correlation dynamics is a useful preliminary approach for studying the changing comovement between Fed funds rate and deficit. However, the Fed rate and deficit may be affected by other variables characterizing the state of the economy, such as inflation and the level of economic activity. For this reason, the two approaches below consider VAR processes that include the output gap and inflation in addition to the Fed rate and deficit.

Second, we use Den Haan's (2000) method to analyze the comovements between Fed rate and deficit. Den Haan proposes using the correlations of VAR forecast errors at different horizons. In this way one can take into account a full set of statistics characterizing comovement dynamics in an efficient manner. In particular, in order to analyze the comovement between Fed rate and deficit we estimate a four-variable VAR that includes four-quarter average inflation and output gap in addition to these variables.

The two approaches outlined above are useful for uncovering the dynamic correlation between fiscal and monetary policy instruments, but they can neither provide information on causality nor detect the presence of switching regimes. For this reason, we also study the dynamic relationship between Fed rate and deficit by estimating a two-state four-variable Markov switching VAR (MSVAR) model à la Hamilton. For the sake of simplicity, it is considered that the same two-state Markov switching process characterizes both the systematic part and the variance–covariance of the disturbances of the MSVAR. Following Pelletier (2006), we can further estimate in a quite straightforward manner the regime-switching dynamic correlations of the alternative variables of the model. This approach allows us to estimate the dates of regime switching without imposing them as occurs in the first two approaches considered.

[1] Some economists believe that the switch in monetary policy went from a passive to an active monetary regime, using Leeper's (1991) taxonomy. Sargent (1999) and Cogley and Sargent (2005) share this view. Alternatively, Sims and Zha (2004) argue that the regime changes in the systematic component of the monetary policy reaction function have been rather modest compared to the large changes in the non-systematic component.

[2] Strictly speaking, we do not use the terms "active" and "passive" policy as defined by Leeper (1991). According to Leeper's taxonomy, an economic policy authority is passive when its policies are determined by the intertemporal budget constraint. But this policy stand does not preclude that the policy authority might follow an "active" countercyclical policy in the short-run even though its policy is determined by a "passive" budget balancing objective in the long-run. From now on, the term "active" policy stands for countercyclical policy whereas the term "passive" policy stands for a policy aimed at budget balancing.