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The effect of monetary policy on output in EMU3 A sign restriction approach

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Abstract

This paper examines the effects of monetary policy shocks on output in the three largest euro area economies – Germany, France and Italy (EMU3) – by applying a new VAR identification procedure. The results show that monetary policy innovations are at their most potent in Germany. However, apart from Germany, it remains ambiguous as to whether a rise in interest rates concludes with a fall in output, showing a lack of homogeneity in the responses. Homogeneity in response to a monetary shock is crucial in a one-size-fits-all framework. Nonetheless, the lack of similarity between the responses, which is hypothesised to cause de-synchronised business cycles in optimal currency area literature, is often based on the premise that monetary policy itself is a major source of business cycle fluctuations. This paper concludes that monetary policy innovations play, at most, a modest role in generating fluctuations in output for the EMU3. Consequently, it is less important whether the effects of monetary policy are homogenous.

JEL classification: E32; E52

Keywords: Monetary shocks; Sign restriction; Euro area

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1. Introduction

Economists have long understood that monetary policy can play an useful role in the determination of fluctuations in output and prices. The consensus view that guides European Central Bank (ECB) monetary policy remains that monetary policy has real short-term effects, with the long-run effects restricted to inflation (see Mihov, 2001). A major source of discussion involves the magnitude and impact of the short-run effects and whether much of the business cycle can be explained by monetary policy disturbances. Vector autoregressions (VAR), pioneered by Sims (1980), led to most of the early empirical work in this area. Although there appears to be little agreement on the correct way of identifying policy shocks, alternative identification assumptions seem to deliver very similar conclusions: (1) short-term interest rates rise; (2) output, employment and money aggregates decline; (3) prices decline with the impact occurring after a delay of at least six quarters; (4) monetary policy shocks account for at most, a modest portion of output and price volatility. Nevertheless, researchers have disagreed on the best means of identifying shocks. The last 10 years has witnessed a considerable effort to identify monetary policy disturbances using parsimoniously restricted time-series models (Canova and Nicoló, 2002).[1]

There appears to be little consensus on what type of model or the variables should be used as an indicator of monetary policy. There is a long tradition in monetary economics of searching for a single policy variable – perhaps a monetary aggregate or an interest rate – that is more or less controlled by policy and stably related to economic activity (Leeper et al., 1996). Sims (1992) notes that one cannot determine the influence of monetary policy by simply observing changes in interest rates. In inflation targeting regimes, money is often viewed as the nominal anchor of the system, best demonstrated by the fact that sustained price increases cannot occur without an increase in the monetary aggregates. The use of the real short-term interest rate is also tainted by the fact that it mixes monetary and real influences, such as the rate of productivity growth. Christiano et al. (1996) concluded that short-term interest rates are at best a 'polluted' measure of the stance taken by monetary policy.[2] In contrast McCallum (1983), Bernanke and Blinder (1992) and Bernanke and Mihov (1998) preferred to make the case for short-term interest rates. In partial agreement, Canova and Nicoló (2002) use the slope of the term structure in place of a short-term interest rate. Of course, it is possible that neither short-term interest rate innovations nor money stock innovations are good measures of policy shifts (Leeper et al., 1996).[3]

In a monetary union, the implications of the use of the real interest rate channel leads to the possible outcome that monetary policy no longer acts as a brake on the business cycle but instead may accentuate regional economic developments. Heterogeneous effects to monetary policy may lead to divergence amongst business cycles, whilst also indicating significant differ-

[1] The direction of monetary policy can have varying effects on output. Cover (1992) was one of the first to analyse the importance of monetary policy asymmetries. Since then, there have been many studies analysing the effects of monetary policy asymmetries on output.

[2] Christiano et al. (1996) finds that the estimates of monetary policy shocks for output fluctuations remain very sensitive to the way monetary policy is measured. For example, using the US Fed Funds Rate, they find monetary policy shocks account for around 21% of four quarter forecast error variance for real GDP, which rises to 30% for the 24 quarter forecast error variance. In contrast, much smaller effects were found when using policy measures based on monetary aggregates.

[3] In addition, the issue of measuring the effect of monetary policy on output fluctuations is further complicated by measures of output (see Kose et al., 2003).