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Is monetary policy in the new EU member states asymmetric?

Bořek Vašíček *

Economic Research Department, Czech National Bank, Na prikope 28, 11503 Prague 1, Czech Republic

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ABSTRACT

Estimated Taylor rules have become popular as a description of monetary policy conduct. There are numerous reasons why real monetary policy can be asymmetric and estimated Taylor rules nonlinear. This paper tests whether monetary policy can be described as asymmetric in three new European Union (EU) members (the Czech Republic, Hungary, and Poland) which apply an inflation targeting regime. Two different empirical frameworks are used: (i) Generalized Method of Moments (GMM) estimation of models that allow discrimination between sources of potential policy asymmetry but are conditioned by specific underlying relations, and (ii) a flexible framework of sample splitting where nonlinearity enters via a threshold variable and monetary policy is allowed to switch between regimes. We find generally little evidence for asymmetric policy driven by nonlinearities in economic systems, some evidence for asymmetric preferences, and some interesting evidence on policy switches driven by the intensity of financial distress in the economy.

1. Introduction

The monetary policy setting in the Central and Eastern European countries (CEECs) evolved substantially during the economic transition. These countries experimented with diverse monetary policy and exchange rate frameworks until the late 1990s, when their policy regimes fell into line with the then influential bipolar view, i.e., that intermediate regimes between hard exchange rate pegs and free floating are not sustainable. Some countries (the Baltic States and Bulgaria) adopted hard pegs,

* Tel.: +420 224 414 427.
E-mail addresses: borek.vasicek@gmail.com, borek.vasicek@cnb.cz.

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which put a significant constraint on their monetary policy, while other economies decided to maintain an overall flexible exchange rate, allowing their central banks to pursue internal macroeconomic targets (the Central European countries and Romania). Ongoing nominal and real convergence coupled with EU membership and the obligation to meet the Maastricht criteria put another constraint on policy making in general and monetary policy in particular in the New Member States (NMS). Some countries have merely formalized their previous exchange rate pegs by means of participation in the Exchange Rate Mechanism II (ERM II) and consecutive euro adoption, while others have retained their monetary policy autonomy under the framework of inflation targeting (IT) to the present day. Given the relative success of the latter countries in achieving price stability with decent levels of economic growth, it is of interest to understand their monetary policy conduct in greater detail. In particular, it seems interesting to empirically explore interest rate setting behavior under the IT mandate as well as the subtle differences between these countries.

There is a vast amount of empirical research on the way central banks handle interest rate setting. Since Taylor (1993), researchers have been estimating Taylor rules, as they seem to characterize well the interest rate setting of central banks. Clarida et al. (1998, 2000) propose that central bankers are proactive rather than reactive and set interest rates with respect to expected values of macroeconomic variables. Estimated monetary policy rules typically take a linear form, assuming that monetary policy responds symmetrically to economic developments. The theoretical underpinning of the linear policy rule is the linear-quadratic (LQ) representation of macroeconomic models, with the economic structure assumed to be linear and the policy objectives to be symmetric, as represented by a quadratic loss function (e.g., Clarida et al., 1999). However, when the assumptions of the LQ framework are relaxed, the optimal monetary policy can be asymmetric. Asymmetric monetary policy implies that the monetary policy rule, which is a schematization of the policy reaction function, is nonlinear. In reality, however, asymmetric monetary policy can arise even when the underlying relations are essentially linear but the policy responses (slope elasticities) are different for positive and negative shocks. Unfortunately, owing to difficulties with shock identification, most empirical research relates asymmetric policy only with departures from the LQ framework and, therefore, nonlinear underlying relations.

Departures from the LQ framework involve two different sources of policy asymmetry. The first source lies in nonlinearities in the economic system. A common example of such nonlinearity is a steeper inflation–output trade-off when the output gap is positive. Such convexity of the Phillips curve (PC) implies that the inflationary effects of excess demand are larger than the disinflationary effects of excess supply (e.g., Laxton et al., 1999). This can lead optimizing central bankers to behave asymmetrically (Dolado et al., 2005). However, asymmetric monetary policy can also be related to genuinely asymmetric preferences of central bankers. While central banks in the past were prone to inflation bias due to a preference for high employment or uncertainty about its natural level (Cukierman, 2000), reputation reasons can drive central banks, especially those pursuing IT, to have an anti-inflation bias, which means that they respond more actively when inflation is high or exceeds its target value (Ruge-Murcia, 2004). Looking at monetary policy decisions from the risk management perspective, it seems plausible that central banks would like to avoid tail risk, which implies a disproportional response to certain vulnerabilities bringing about asymmetric policy responses. For example, deflationary risks in the US around 2003 could be seen as a factor behind its policy rate hovering around 1% for a rather extended period. The CEECs may also be more vulnerable to certain risks, such as those stemming from other emerging countries, e.g., the 1998 Russian crisis. In general terms, real monetary policy conduct seems to be too complex to be described by a simple linear equation, and nonlinear representation of monetary policy may be more appropriate irrespective of its underlying sources.

Several empirical studies have provided evidence that the monetary policy setting of many central banks may really be characterized as asymmetric. An asymmetric loss function was found to affect the decisions of the Bank of England (Taylor and Davradakis, 2006) and the US Fed (Dolado et al., 2004). Bec et al. (2002) confirm that the US Fed, the Bundesbank, and the Bank of France responded more actively to inflation during economic booms. Leu and Sheen (2006) and Karagedikli and Lees (2007) detect an asymmetric response to the output gap by the Reserve Bank of Australia. Surico (2007a) claims that in its early years the European Central Bank (ECB) responded more strongly to output