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# Monetary policy rules for convergence to the Euro

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### ABSTRACT

This paper investigates the applicability of open-economy convergence-consistent instrument rules for monetary policies in the economies undergoing monetary convergence to a common currency area. The proposed policy rule is forward-looking, consistent with a monetary framework based on inflation-targeting containing input variables that are relative to the corresponding variables in the common currency area. Robust forms of the policy rule are tested empirically for three inflation-targeting countries converging to the euro, i.e. the Czech Republic, Poland and Hungary. Empirical tests imply systemic differences in monetary policies among these euro-candidates. The Czech monetary policy seemingly follows the rule prescribed by our model. Both the Czech and the Polish central bank interest rate policies respond predominantly to changes in the inflation gap, while the Hungarian responds mainly to the exchange rate gap. In all three cases, changes in the eurozone short-term interest rates strongly drive adjustments in the central banks' reference interest rates.

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## 1. Introduction

Monetary policies in countries converging to a common currency system cannot be based exclusively on discretionary responses to observed or anticipated shocks to inflation and other target variables. Since convergence to a common currency is a multifaceted process that is comprised of closing the gaps in inflation rates and interest rates as well as stabilizing exchange rates, a transparent, forward-looking instrument rule could be helpful for achieving these at times exclusive tasks. Thus far,

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the literature has not identified a uniform, robust open-economy instrument rule to guide monetary policies in the economies converging to the euro.

This study aims at investigating a plausible forward-looking instrument rule for open economies undergoing monetary convergence to a common currency system. Such a policy rule ought to include real interest rate, inflation gap, output gap and exchange rate gap as independent or input variables, which guide changes in short-term interest rates as policy instruments chosen by a central bank. In the case of converging economies, these input variables ought to be devised as differentials between domestic and the corresponding currency area variables in order to monitor and guide the convergence process effectively. The relative treatment of these input variables is consistent with the policy framework of targeting inflation forecast differentials proposed by Orlowski (2008) for converging economies. Thus, in essence, this study examines instrument rules and conditions of their implementation that are consistent with the relative-inflation-forecast-targeting framework.

Feasibility of the proposed instrument rule is examined for the three largest countries pursuing convergence to the euro, i.e. for Poland, Hungary and the Czech Republic. In contrast to smaller euro-candidate countries that follow convergence based on currency pegs to the euro, monetary authorities of these larger states have chosen more flexible policy venues based on inflation-targeting. The Czech National Bank (CNB) has been focusing on inflation-targeting since January 1998, the National Bank of Poland (NBP) since January 1999 and the National Bank of Hungary (NBH) since May 2001. As these countries undergo convergence to the euro, their instrument rules for monetary policy cannot be fully autonomous, i.e. based on a simple framework originally proposed by Taylor (1993). Arguably, their central banks do not follow a homogeneous policy prescription (Golinelli and Rovelli, 2005; Orlowski, 2005, 2008; Jonas and Mishkin, 2005). A forward-looking rule encompassing open, converging economy variables could provide them with useful guidance for monitoring and implementing the euro-convergence process.

Section 2 of our paper provides a background discussion on the standard Taylor rule and states assumptions for its extension for open converging economies. Several models of a forward-looking instrument rule that is conducive for such economies are developed and discussed in Section 3. A testable version of the model is presented in Section 4, along with the examination of the degree of stability of the key independent variables in the three euro-candidate countries. Empirical tests of the heteroscedasticity-consistent OLS regression of the underlying instrument rule model are presented and discussed in Section 5. Section 6 summarizes the key findings and offers policy conclusions that seem relevant for the euro-candidate countries.

## 2. Instrument rule for a converging economy—general assumptions

Monetary policy in an economy converging to a common currency system cannot be implemented through discretionary reactions exclusively. It needs pre-determined rules that guide changes in the policy instrument (short-term interest rates) in response to a set of input variables, at a minimum, to deviations of the actual from potential output as well as the actual from targeted inflation. For a converging economy, the instrument rule should also encompass the main criteria of monetary convergence, such as lowering the gap between the domestic and the common currency area inflation and the interest rate gap, as well as securing exchange rate stability. Moreover, a credible policy rule is likely to gear expectations or future predictions of changes in these variables to the convergence thresholds, such as the EU-prescribed Maastricht criteria.

Devising a sensible, robust rule for monetary policy in a converging economy is a complex task. A general assumption for such a rule is that changes in the central bank reference interest rates should react to changes in the forecasts of the input variables, i.e. regressors or independent variables in the policy rule function. These input variables for a converging economy include the inflation gap (the difference between the inflation forecast and the inflation target), the output gap (the difference between the actual and potential output) and the exchange rate gap (deviation between the exchange rate forecast and the officially declared convergence rate).

Complexity of an open converging economy instrument rule arises from a number of factors such as:

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