

Central bank learning, terms of trade shocks and currency risk: Should only inflation matter for monetary policy?

G.C. Lim ^{a,*}, Paul D. McNelis ^b

^a *Melbourne Institute of Applied Economic and Social Research & the Department of Economics, University of Melbourne, Parkville, Victoria 3010, Australia*

^b *Department of Finance, Graduate School of Business Administration, Fordham University, New York, New York 10023, USA*

Abstract

This paper examines the role of interest rate policy in a small open economy, subject to terms of trade shocks and time-varying currency risks. The private sector makes optimal decisions in an intertemporal, non-linear setting with rational, forward-looking expectations. In contrast, the monetary authority chooses an optimal interest rate reaction function, given a loss function that is conditional on the state of the economy and given its “least squares learning” about the evolution of inflation and exchange-rate depreciation. The simulation results of the effects of different policy scenarios on welfare show that, on balance, the preferred stance should be strict inflation targeting.

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JEL classification: E520; F410

Keywords: Policy targets; Central bank learning; Parameterized expectations

1. Introduction

This paper examines the role of interest rate policy in a small open economy subject to terms of trade shocks and time-varying currency risks. A central bank committed to low inflation

* Corresponding author. Fax: +61 3 8344 2111.

E-mail addresses: g.lim@unimelb.edu.au (G.C. Lim), mcnelis@fordham.edu (P.D. McNelis).

controls neither the terms of trade nor the evolution of currency risk, both of which condition the response of inflation to its policy instruments. In this context, the best the central bank can do is to learn the effects indirectly by frequently updating estimates of inflation dynamics and re-adjusting its policy rules accordingly.

However, when an economy is subjected to large adverse external shocks and the exchange rate depreciates rapidly, it should not be surprising if a central bank also comes under strong pressure to incorporate exchange-rate volatility targets in its policy objectives. Should exchange-rate changes then be included as one of the monetary policy targets along with inflation targets?

Much of the discussion of monetary policy is framed by the well-known Taylor (1993, 1999) rule, whereby interest rates respond to their own lag, as well as to deviations of inflation and output from respective targets. Taylor (1993) points out that this rule need not be a mechanical formula, but something which can be operated informally, with recognition of the “general instrument responses which underlie the policy rule.” Not surprisingly, the specification of this rule, which reflects the underlying objectives of monetary policy, has been the subject of considerable controversy.¹

In a closed economy setting, Christiano and Gust (1999), for example, argue that only the inflation variable should appear as a target. Rotemberg and Woodford (1998) concur, but they argue that a higher average rate of inflation is required for monetary policy to be effective over the medium to long term. They base their argument on the zero lower bound for the nominal interest rate, since at very low inflation rates there is little room for this instrument to manoeuvre.²

In an open economy setting, McCallum (2000) takes issue with the Rotemberg and Woodford policy ineffectiveness argument under low inflation and zero lower bounds for nominal interest rates. McCallum argues that the central bank always has at its disposal a second tool, the exchange rate, so if the economy is stuck at a very low interest rate, there is the option of currency intervention. Christiano (2000) disagrees: McCallum’s argument rests on the assumption that currency depreciation is effective. Furthermore, the central bank must be willing to undermine public confidence that it stands ready to cut interest rates in the event of major adverse shocks.

For small emerging market economies, Taylor (2000) contends that policy rules that focus on a smoothed inflation measure and real output, and which do not “try to react too much” to the exchange rate might work well. However, he leaves open the question of a role for the exchange rate. Ball (1999) argues that inflation targeting “can be dangerous” in an open economy setting because exchange-rate changes have a direct effect on inflation via changes in import prices. Hence, adoption of a strict inflation targeting stance can result in large output variations. More recently, Gali and Monacelli (2002) found, in a small open economy setup with sticky-price setting behavior, that domestic inflation targeting dominates, from a welfare point of view, both CPI inflation targeting and an exchange-rate peg. They base their argument on the “excess smoothness” induced in the exchange rate by CPI targeting or an exchange-rate peg. This smoothness, in combination with the assumed stickiness in nominal prices, prevents relative prices from adjusting sufficiently fast, thus causing “a significant deviation from the first best allocation” (Gali and Monacelli, 2002, p. 2).

¹ Recent technical papers on all aspects of the Taylor rule may be found on the web at <http://www.stanford.edu/~johntayl/PolRulLink.htm#Technical%20articles>.

² Erceg et al., 2000 argued that output deviations should also appear in the Taylor rule, but the output measure should be deviations of actual output from the level of output generated by a flexible-price economy.

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