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Sources of asymmetric shocks: The exchange rate or other culprits?

Michal Skorepa^a, Lubos Komarek^{b,*}^a Financial Stability Department of the Czech National Bank, Czech Republic^b External Economic Relations Division of the Czech National Bank, Czech Republic

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ABSTRACT

We analyze and quantify the determinants of medium-term real exchange rate (RER) changes. First, we discuss the sources of asymmetric shocks causing exchange rate variability and the role of the RER as a shock absorber or generator. Secondly, we use data for 21 advanced and late transition economies to gauge the extent to which medium-term bilateral real exchange rate variability can be explained by various fundamental factors. Using Bayesian model averaging, we find that out of 22 factors under consideration, four types of dissimilarities within a given pair of economies are likely to be included in the true model: dissimilarities as regards (i) financial development, (ii) per capita income growth, (iii) central bank autonomy, and (iv) the structure of the economy. A regression based on these four factors indicates that they explain about 96 percent of the sample average level of three year RER variability. In the logic of our approach, the remaining part of the total variability represents an upper estimate of the influence of the foreign exchange market itself. For our sample, the contribution of the real exchange rate itself to asymmetric shocks therefore appears to be very low.

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1. Introduction

Asymmetric shocks can create serious problems for policymakers during the process of setting an optimal macroeconomic policy for a given economy. In this context, a crucial aspect is whether monetary policy in that economy applies a floating or fixed exchange rate. The textbook model

* Corresponding author.

E-mail addresses: michal.skorepa@cnb.cz (M. Skorepa), lubos.komarek@cnb.cz (L. Komarek).

(Fleming, 1962; Mundell, 1962; De Grauwe, 2009) implies that the nominal exchange rate is able to at least partly shield the domestic economy from many types of asymmetric – nominal as well as real – shocks (foreign monetary policy shocks, productivity shocks, changes in the terms of trade, etc.). More specifically, the nominal exchange rate changes in value so as to reduce the impact of those shocks on domestic output and employment. If the exchange rate does provide this partial shield, then it works as an “absorber” of asymmetric shocks. Empirical support for this view is provided, for example, by Stockman (1983). According to this view, a fixed exchange rate regime may seem inferior because it implies that the protection provided by the nominal exchange rate is lost.

In reality, however, the nominal exchange rate itself may be frequently and sizably misaligned (Obstfeld, 1985; Mussa, 1986; Buitier, 2000) – it may be a strong shock generator or, more generally, reflect pressures originating in financial markets rather than in the real economy. In that case, a fixed nominal exchange rate regime relying on other variables in the economy to fully bear the burden of adjustment to asymmetric shocks may be superior.¹ This second, non-exchange rate channel of potential adjustment consists of variables such as labor and capital flows, prices, wages, and fiscal redistribution.

The decision on whether a fix or a float² is preferable in terms of macroeconomic shock elimination should depend on the relative size and frequency of shocks generated within the exchange rate channel of adjustment versus the non-exchange rate one. The determination of the relative size and frequency of these two types of shocks is largely an empirical issue. MacDonald (1998) formulates this issue as a question on the direction of causality between the variability of the nominal exchange rate (NER) and that of the real exchange rate (RER)³: a float is better if changes in the RER mostly cause changes in the NER, while a fix is better in the opposite case.

Given the significant implications that the choice of the exchange rate regime has, it is no wonder that a lot of researchers have tried to assess empirically, for various economies and time periods, the extent to which the nominal exchange rate is a shock generator or a shock absorber. For example, a popular approach is to use VAR-based decomposition techniques (Blanchard and Quah, 1989) to decompose the movements of the RER observed over time into essentially two segments, corresponding to nominal (financial markets, exchange rate) shocks and all other shocks (e.g., Lastrapes, 1992; Clarida and Gali, 1994).

This paper tries to shed some light on the same fundamental question, i.e., whether the exchange rate is a shock generator or a shock absorber, but from a somewhat different angle. It looks at the extent to which differences in medium-term RER variability, properly measured to capture trends, across various currency pairs can be explained by fundamental factors. The potentially relevant factors are represented here by 22 variables for a sample of 210 currency pairs formed by 21 advanced and late transition economies. The part of the average of our measure of RER variability that remains unexplained by our regression can be viewed as (an upper estimate of) the impact on RER variability of shocks coming from the foreign exchange market itself. Obviously, this question is especially important for the central banks of small open inflation-targeting economies. We find that out of our set of 22 fundamentals, four seem likely to be a part of the true model of RER variability determination, namely, dissimilarities as regards (a) financial development, (b) per capita income growth, (c) central bank autonomy, and (d) the structure of the economy. These four determinants are able to explain about 96 percent of the sample average of our measure of RER variability.

The paper is organized as follows. Section 2 contains a short survey of the factors influencing the real exchange rate and its variability. Sections 3 and 4 explain the empirical methodology and data used in our analysis. In Section 5 we provide the empirical results from Bayesian model averaging (BMA) and follow-up OLS estimations together with a number of sensitivity checks. Section 6 concludes.

¹ On a theoretical level, Devereux (2004) suggests that if the economy is not fully integrated into international financial markets, then a fix may actually dominate a shock-absorbing float in terms of overall welfare.

² The analysis of the favourableness of exchange rate regimes is one of the crucial policy questions also affecting the interplay of monetary and fiscal policy. For example, Kimakova (2008) shows both how a small open economy reliant on foreign sources of financing is likely to opt for a stable regime and that flexible rather than fixed exchange rate regimes provide more fiscal discipline.

³ $RER = NER \cdot P^f / P$, where RER is the real exchange rate, NER is the nominal exchange rate in the sense of the price of one unit of foreign currency, P^f is the foreign price index, and P is the domestic price index.

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