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Exchange rate regimes and international business cycles

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Abstract

This paper investigates the impact of exchange rate regimes on international business cycles and focuses on the consequences of membership to the European Monetary System. The volatility puzzle uncovered by Baxter and Stockman [1989, Journal of Monetary Economics 23, 377–401] after assessing the consequences of the Bretton Woods system turns out to be a robust stylized fact: real and nominal exchange rates display a higher volatility under floating rates while the variability of macroeconomic quantities remains unchanged across exchange rate regimes. Besides, there is evidence that fixed rates are associated with enhanced comovement in output, consumption and investment. We find that a two-country model, featuring monopolistic competition, pricing-to-market, and price stickiness, captures all of the empirical features of the data but one; namely the stronger output comovement following the transition to fixed rates.

Keywords: Exchange rate regimes; Monopolistic competition; Price rigidities; Pricing-to-market

1. Introduction

There are two well-established empirical regularities that describe the relationship between exchange rate regimes, the volatilities of exchange rates and macroeconomic quantities, and the cross-country correlations of macroeconomic quantities. First, Mussa (1986) reports that the volatility of real and nominal exchange rates is substantially lower under fixed than under flexible exchange rates. In contrast, the variability of macroeconomic quantities is unchanged across regimes (Baxter and Stockman, 1989; Flood and Rose, 1995). Second, there is no evidence that cross-country correlations of

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macroeconomic variables rise under flexible exchange rates, relative to fixed exchange rate periods (Baxter and Stockman, 1989).

These facts are puzzling once we compare them to the predictions of most modern theoretical models of exchange rates. In Obstfeld and Rogoff's (1995a) seminal paper, the volatility of macroeconomic quantities is linked to the volatility of real and nominal exchange rates. Indeed, a home monetary shock implies a depreciation of the home currency. If we consider the response of the domestic economy to this depreciation within Obstfeld and Rogoff's (1995a) framework, where all goods satisfy the law of one price and the Purchasing Power Parity holds, then the depreciation makes home goods (foreign goods) less expensive (more expensive) for foreign households (for domestic households). As a result, the demand for home goods, and hence home aggregate output, increases. The exchange pass-through to consumer prices introduces a close relationship between fluctuations in the nominal exchange rate and changes in quantities. Cross-exchange rate regime evidence refutes this idea. Finally, many traditional models of international exchange predict that the degree of insulation of an economy from shocks in trading partners' economies should rise under flexible exchange rates, as a direct consequence of nominal exchange rate and current account adjustments. The data suggest, however, that cross country correlations of macroeconomic aggregates are no lower—and may be actually higher—under flexible than under fixed exchange rates.

The contribution of this paper to the literature on the relative performance of fixed versus floating exchange rate regimes is twofold.

First, it proves that salient features of the data found by Mussa (1986) and Baxter and Stockman (1989) also hold for pre- and post-European Monetary System (EMS) periods. In EMS countries only, the variability of nominal and real exchange rates is significantly lower when operating under the EMS, while the volatility of macroeconomic quantities is hardly altered by the transition to fixed rates (volatility puzzle). Furthermore, membership to the EMS did not result in an increase in cross-country correlations in output, consumption or investment. However, in the EMS period, the EMS countries are more synchronized with their German counterpart than with the US cycle. In that sense, the EMS seems to enhance international co-movement in output, consumption and investment.

Second, the paper examines the ability of a two-country model featuring monopolistic competition, pricing-to-market (PTM) and nominal rigidities to account for the puzzling properties of the data identified in the pre/post-EMS years. Market segmentation (tariffs, transportation costs, ...) allows PTM firms to choose a price in the buyer's currency: a home price in the home currency as well as a foreign price in the foreign currency. This price discrimination makes consumer price indexes immune to nominal exchange rate fluctuations. With PTM and sticky prices, the depreciation caused by the home currency shock does not affect relative prices faced by consumers. Exchange rate changes do not modify real allocations, thus allowing the model to account for the volatility puzzle.[1] Indeed, we find that the sticky price PTM model captures all of the empirical features of the data but one; namely the enhanced output comovement under fixed exchange rates.

[1] Under PTM, there are real allocative consequences of real and monetary shocks. However, they are driven by profit/income effects rather than by substitution effects associated with exchange rate depreciation in the standard sticky price model without PTM.