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Information sharing and central bank intervention in the foreign exchange market

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Abstract

This paper develops a model of information sharing among heterogeneously informed agents and it uses the model to examine a rationale for intervention in the foreign exchange market. The model shows that in a partially revealing rational expectations equilibrium, some agents can gain by sharing among themselves private information about transitory exchange rate disturbances. In this setting, a central bank can affect the exchange rate by aggregating and disseminating agents' information. The paper also illustrates the usefulness of intervention as a way to transmit that information. © 2001 Elsevier Science B.V. All rights reserved.

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1. Introduction

Many central banks intervene in foreign exchange markets and then sterilize their intervention in their domestic markets. They do so despite considerable controversy over the objectives of such sterilized intervention and whether it has any effect at all. While the role of the central bank in the foreign exchange market is at the heart of the controversy, discussions of intervention typically treat the

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central bank's objectives as being unrelated to the workings of the market itself. In this paper, we describe how some of the characteristics of foreign exchange trading might give rise to a distinct rationale for intervention in the market. This emphasis on the market enables us to examine carefully one role for intervention and to draw out some of its corresponding implications.

Our work is in the spirit of recent research on the microstructure of the foreign exchange market, and, in keeping with much of that research, we focus on the market's informational structure.[1] Specifically, we provide a model of information sharing among a group of heterogeneously informed market participants. This information sharing model uses the partially revealing rational expectations equilibrium approach of Diamond and Verrecchia (1981).[2] In our model, the sharing of information makes the exchange rate less noisy and allows all market participants to extract a better signal of fundamentals from the exchange rate.[3]

We then suggest that central bank intervention can affect the exchange rate by facilitating this information sharing. Intervention's institutional arrangements themselves hint at such an informational role. The central bank enters the market through ongoing relationships with its dealers. Those dealers provide it with information, and they act as counterparties for central bank intervention. Through these interactions, the central bank acquires information about market conditions. We emphasize that the central bank can also use these interactions to credibly disseminate that information. This information-sharing role is related to the familiar signalling channel in which the central bank is said to disseminate information about its own future policy.[4] Through either channel, the purpose of central bank intervention is to transmit information. We provide a simple illustration of how intervention can make such information transmissions credible.

The rest of this paper is organized as follows. Section 2 briefly describes the channels through which sterilized intervention might have an effect. We describe the portfolio balance and the signalling channel, and we introduce a third channel, which we call the information sharing channel. We present our model of information sharing in Section 3, where we show that some dealers can be made better off by sharing their information. Section 4 describes some of the central bank's activities that are suggestive of an information-sharing role, then it illustrates the usefulness of intervention in providing credibility. Section 5 concludes and suggests avenues for further investigation.

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[1]Lyons (2001) surveys microstructural approaches to studying the foreign exchange market.

[2]In using the partially revealing rational expectations approach to study intervention, our work is closest to that of Battacharya and Weller (1997), which is, in turn, is closely related to that of Vitale (1999). The approach of this paper was developed independently from theirs, which are described further in the next section.

[3]We define 'fundamentals' as the exchange rate determinants with long-lasting effects on the exchange rate. In contrast, transitory determinants (such as the liquidity disturbances we consider in the model in Section 3) affect only the current exchange rate.

[4]The 'signalling' channel sometimes is called the 'expectations' channel.

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