Dealer behavior and trading systems in foreign exchange markets

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Abstract

We study dealer behavior in the foreign exchange spot market using detailed observations on all the transactions of four interbank dealers. There is strong support for an information effect in incoming trades. The direction of trade is most important, but we also find that the information effect increases with trade size in direct bilateral trades. All four dealers control their inventory intensively. Inventory control is not, however, manifested through a dealer’s own prices in contrast to findings by Lyons (J. Financial Econ. 39(1995) 321). Furthermore, we document differences in trading styles, especially how they actually control their inventories.

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1. Introduction

Short-term exchange rate fluctuations are notoriously difficult to explain (see, e.g., Frankel and Rose, 1995). After extensive research over many years, few stones have been left unturned when it comes to investigating the short-term explanatory power of macroeconomic variables. The microstructure approach to foreign exchange takes a different route and studies the agents that actually set the exchange rate: the dealers. Here, we study dealer behavior using a very detailed data set with the complete trading records of four interbank spot foreign exchange dealers during the week March 2–6, 1998. We first test models of price determination, and we then examine the dealers’ trading styles. Our data set contains all relevant information about each trade such as transaction time, transaction prices and quantities, inventories, trading system used, and who initiated the trade. Despite the size and importance of foreign exchange (FX) markets, there are virtually no empirical studies using transaction prices and dealer inventories. A notable exception, however, is the study by Lyons (1995) that uses a data set from 1992 on transaction prices and dealer inventories for one dealer covering one week in August 1992. Other studies that should be mentioned are Yao (1998a,b) and Mende and Menkhoff (2004).

Much empirical work on market microstructure has focused on the specialists at the NYSE. However, due to its decentralized multiple dealership structure and its low transparency, the FX market is very different from the specialist structure on the NYSE. Non-bank customers trade bilaterally with dealers who provide quotes on request. The interdealer market has a hybrid market structure with two different trading channels available: direct (bilateral) trades and brokered trades (including both electronic brokers and the more traditional voice brokers). The FX market is also special in the sense that trading is largely unregulated. This means, for example, that low transparency has evolved endogenously. For direct interdealer trades and customer trades, details such as bid and ask quotes or the amount and direction of trade are only observed by the two transacting counterparties. Brokers are more transparent. Electronic brokers announce best bid and ask prices and the direction (not amount) of all trades (voice brokers announce a subset). This information is only available to the dealers, however. Electronic brokers have become very popular since their introduction in 1992 and are now the dominant tool for interdealer trading. As such, electronic brokers now provide some degree of centralization in an otherwise decentralized market.

In contrast to the NYSE, at least two major stock markets, the NASDAQ and the London Stock Exchange, are organized as multiple dealership markets. Furthermore, electronic brokers were introduced relatively early in the FX market, and have recently been implemented by several stock markets. There are also many similarities between FX and bond markets, e.g., the U.K. gilt market studied by Vitale (1998) and the 5-year Treasury note interdealer broker market studied by Huang et al. (2002), and thus our results may apply more broadly than just to FX markets.

Our first contribution with this paper is to test the two main branches of microstructure models, namely inventory control and adverse selection. Inventory
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