Informed trade in spot foreign exchange markets: an empirical investigation

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Abstract

This paper presents new evidence on information asymmetries in inter-dealer FX markets. We employ a new USD/DEM data set covering the activities of *multiple* dealers over one trading week. We utilise and extend the VAR structure introduced in Hasbrouck [J. Finance 46(1) (1991) 179] to quantify the permanent effects of trades on quotes and show that asymmetric information accounts for around 60% of average bid-ask spreads. Further, 40% of all permanent price variation is shown to be due to transaction-related information. Finally, we uncover strong time-of-day effects in the information carried by trades that are related to the supply of liquidity to D2000-2; at times when liquidity supply is high, individual trades have small permanent effects on quotes but the proportion of permanent quote variation explained by overall trading activity is relatively high. In periods of low liquidity supply the converse is true—individual trades have large permanent price effects but aggregate trading activity contributes little to permanent quote evolution.
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1. Introduction

Prior to the 1990s, analysis of the causes of exchange rate movements was a

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field that was firmly in the hands of macroeconomists. Exchange rate models, based on the goods and asset market approaches were set out and tested using low frequency (e.g. monthly or quarterly) data on exchange rates and macroeconomic fundamentals. However, these tests most often revealed that the fundamentals were less important for exchange rate determination than models predicted. The explanatory power of macroeconomic data for exchange rates was poor and the forecasting power of regressions based on fundamentals was less good than that of a simple random walk. A classic reference along these lines is Meese and Rogoff (1983).

This failure has led, in the last decade or so, to increasing attention being paid to models of FX market activity and exchange rate determination based on market microstructure analysis. This large and growing literature places the process by which currencies are actually exchanged in centre stage and focusses on the impact of heterogeneities in the trading population for prices and traded quantities.

A key source of heterogeneity in standard microstructure finance is informational—some agents are assumed to be better informed about future asset prices than others (Glosten and Milgrom, 1985). On an empirical level, such informational asymmetries have several important implications. First, faced with the possibility of trading with a better-informed individual, uninformed liquidity suppliers widen the bid-ask spreads that they charge. This allows them to recoup the losses inflicted upon them by insiders from uninformed individuals. Second, and more importantly in the current context, transaction activity carries information and thus trades permanently alter prices. Episodes in which aggressive traders tend to be buying a given currency will lead to its price rising while the converse is true during episodes of aggressive sales. This second prediction is vital—it opens a channel through which transaction activity in FX markets might play a role in exchange rate determination, a feature that is entirely absent from standard macroeconomic exchange rate models. The current study seeks to assess the importance of this channel.

Recent empirical papers that also focus on the explanatory power of currency trading activity for exchange rate changes include Lyons (1995) and Yao (1998). Both of these studies use data from single FX dealers to demonstrate that spreads contain an asymmetric information component. Lyons (1996) extends his prior work by examining the role of *time* in the relationship between trades and quotes. He finds that trades occurring in periods when the market is active convey less information than those consummated when the market is quiet. This is interpreted as consistent with his 'hot potato hypothesis' by which high interdealer volumes are generated more by inventory rebalancing than exploitation of private information. Most recently, studies by Evans and Lyons (2001) and Evans (2001) provide strong evidence for an information content to inter-dealer FX order flow using 4 months of data on direct (i.e. non-brokered) FX trading activity.

Theoretical models that focus on the information contained in inter-dealer spot FX trading activity can be found in Lyons (1995) and Perraudin and Vitale (1996).