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# Bid/ask spreads in the foreign exchange market: An alternative interpretation

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**Abstract**

This paper examines the behavior of the bid/ask spread in the NZD/USD market. Consistent with recent research, I find that many dealers prefer to quote a single spread. Dealers quoting a time-varying spread do not appear to behave in a fashion consistent with microstructure theory. Further analysis shows that the spread's conformance with the predictions of microstructure theory arises from both intraregional and interregional variations in inventory holding costs. This helps explain the apparent paradox that bid/ask spreads in the foreign exchange market behave in accordance with microstructure theory despite the fact that many dealers prefer to quote a single spread.


*JEL classification:* G14; G15
*Keywords:* Exchange rates; Bid/ask spreads; Market microstructure

## 1. Introduction

Prior research documents that bid/ask spreads in the foreign exchange market are inversely related to the number of active dealers and/or quote activity and directly related to currency volatility, consistent with the predictions of microstructure theory (e.g., Bollerslev and Melvin, 1994; Demos and Goodhart, 1996; Huang and Masulis, 1999). Yet prior research also reports that the quoted spreads of individual dealers are largely constant

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over the trading day (e.g., Danielsson and Payne, 2002). This latter phenomenon is also supported by survey evidence from foreign exchange markets (e.g., Cheung and Chinn, 1999; Cheung and Wong, 2000; Cheung et al., 2000). This paper uses high frequency data from the NZD/USD foreign exchange market (hereafter the New Zealand dollar market) to examine this apparent paradox.

The objectives of this paper are two-fold. The first objective is to examine the bid/ask spreads of individual dealers to document the extent to which individual dealers in the foreign exchange market prefer to quote a single spread. This particular aspect to dealer behavior has been ignored by prior researchers. The second, and principal, objective is to identify the relative contributions of the intraregional and interregional variations in the underlying microstructure variables to the observed conformance of bid/ask spreads with microstructure theory. I use data from the New Zealand dollar market because of the pronounced differences in quoted spreads between dealers located in the New Zealand and European time zones which are largely non-overlapping.

Using a new measure of clustering I find evidence of intense clustering in the quoted spreads of individual dealers, consistent with survey findings that dealers prefer to quote a single spread. Moreover, when I examine a sample of dealers who quote time-varying spreads, I find little support for the predictions of microstructure theory. Much stronger support is found when the quote data of the individual dealers of one bank but operating from different financial centers are aggregated to create a time series of quoted spreads spanning the 24-h day. This suggests that interregional variations in the underlying microstructure variables drive the observed conformance with microstructure theory. This explanation is lent empirical support when I find that the estimation results for a spread regression model are more consistent with microstructure theory when the model is estimated using quote data from only dealers who quote a single spread rather than from all dealers. Since the estimation results are equally strong as when the spread regression model is estimated separately for the European and New Zealand time zones, I conclude that it is the variations in the underlying microstructure variables at both the intraregional and the interregional level that are largely responsible for the observed conformance with microstructure theory, at least in the case of the NZD/USD market. These results help explain the apparent paradox that the behavior of the bid/ask spread conforms to the predictions of microstructure theory while the spread of an individual dealer is largely constant over the course of the trading day.

The remainder of the paper is structured as follows. Section 2 discusses prior research on dealer bid/ask spreads in the foreign exchange market. Section 3 describes the data employed in this paper and identifies some of the stylized facts of the New Zealand dollar market. Section 4 presents the data on clustering and empirical results from tests of microstructure theory at the dealer, regional and global level. Section 5 summarizes and concludes.

## 2. Theoretical development

Microstructure theory posits that the bid/ask spreads of foreign exchange dealers will reflect three types of costs: order processing costs, inventory holding costs and asymmetric