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# The electronic trading systems and bid-ask spreads in the foreign exchange market

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### ABSTRACT

This paper examines the impact of electronic trading systems on the bid-ask spreads in the foreign exchange market. The paper finds: first, the EBS reduces spreads significantly; second, the EBS is more influential than the Reuters system for the currency pair DEM/USD; third, dealers with information advantage tend to quote relatively wider spreads with the new systems; fourth, geographical differences in market liquidity are reduced through the new systems, and finally, the effects occur immediately and persist in the long-term. Thus, both proposed positive and negative impacts of the electronic systems are found to be true in this paper, but our findings also suggest that positive effects dominate and the electronic systems overall increase FX market liquidity.

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## 1. Introduction

Through the mid-1990s, the foreign exchange market was primarily reliant on phone-based technology. In April 1992, the first electronic brokers system (Reuters D2000-2) was introduced in the foreign exchange market. The second major electronic system, EBS (Electronic Broking Services), was launched 1 year later in September 1993. Although uptake of electronic broking was relatively slow at first, by the late 1990s these platforms started to dominate interbank trading flows. By most estimates (e.g. Barker, 2007), their combined market share now accounts for about 90 percent of interbank trading in most major currency pairs.

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As summarized in Rime (2003) and Barker (2007), advantages of the electronic systems are obvious: lower operation costs, faster and more accurate transaction processing, fewer geographical restrictions, lower thresholds for market entry and higher market transparency. Intuitively, people would assume that liquidity should increase in FX markets as a result of these advantages. Accordingly, the following question arises: does bid-ask spread, a common measure for liquidity in the FX market, decrease after the introduction of the electronic systems?

No previous direct empirical test can be found in literature to answer this question. Other related studies can not provide a clear answer either. According to Lyons (1995), spreads were already small (three pips) in 1992 in direct dealing market. Similarly, Goodhart et al. (2002) find in their study of the DEM/USD and EUR/USD exchange rates from 1997 to 1999 that the average spread was around 2.5 and 3 pips, respectively. Furthermore, trading volume in the FX market greatly increased in the 1990s, and therefore Rime (2003) suggests that the decrease in spreads caused by electronic brokers is difficult to estimate and should not be exaggerated. The Federal Reserve Bank of New York surveyed FX traders in 1996 and reported that spreads decreased after the introduction of the new systems (FX committee (1997)). However, the survey did not quantify the decrease and did not investigate whether the impact is universal across dealers, time periods and locations.

In theory, there are conflicting arguments on this issue as well. On the one hand, papers such as Pagano and Roell (1996), Naik et al. (1999) and Flood et al. (1999) argue that the new systems should lead to narrower spreads in the senses of lower operation costs, inventory risk and information costs. On the other hand, experimental studies conducted by Bloomfield and O'Hara (1999, 2000) argue that increasing market transparency reduces or even eliminates strategy-based informational advantages that some dealers used to possess when the market was relatively opaque. Thus, these dealers might want to raise the spreads in order to be compensated for the loss of information advantage. Therefore, the electronic systems might even deter dealers' participation in trading and impair the market liquidity.

In a broader scope of literature, this topic is related to the impact of market transparency on market liquidity. Most existing empirical papers examining such an impact focus on the full transparency events, which reveal not only quotes but also orders (e.g. Chung and Chuwonganant (2009) in the stock market, Ates and Wang (2005) in the futures markets and Bessembinder et al. (2006) in the bond market). Since the electronic systems in the FX market reveal only quotes, therefore the introduction of these systems provides a unique opportunity to examine the impact of semi-transparency on market liquidity, which has not been examined empirically before in literature<sup>1</sup>.

The situation described above about the existing literature motivates us to investigate how electronic trading systems affect spreads in the FX market. This study also has practical implications for both dealers and regulators. If the new systems do in fact reduce the spreads, dealers are forced to offset the loss of "spread" profitability by emphasizing value-added services such as timely advice, structured products, cross-market insights and other tailored services. However, if this effect is not universal across dealers, then dealers need to figure out individually whether the new systems are benefiting or hurting them and accordingly adjust their trading and risk management strategies. These lessons will be helpful for future changes in transparency<sup>2</sup>. Furthermore, this paper provides additional evidence for regulators on the impact of increased transparency on the FX market. This information can help with the design of new regulations and policies.

The findings of this paper can be summarized as follows. First, in general, the EBS system reduces spreads significantly; second, for the currency pair DEM/USD, the impact of EBS is more significant than the impact of the Reuters system; third, dealers with information advantage tend to quote relatively wider spreads than small dealers in electronic systems; fourth, geographical differences in market liquidity are greatly reduced through electronic trading; fifth, the effects mentioned above are immediate and persistent. Accordingly, both proposed positive and negative impacts of the electronic

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<sup>1</sup> Flood et al. (1999) as well as Bloomfield and O'Hara (1999) examine the impact of semi-transparency on market liquidity; however, these studies were based on controlled experiments and not on actual empirical market data.

<sup>2</sup> The Internet trading platform is relatively new in the customer FX market. The results from this research can help dealers respond to this new trend.

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