

# Profits and speculation in intra-day foreign exchange trading<sup>☆</sup>

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## Abstract

This study examines profits and speculation in the USD/EUR trading of a bank in Germany over a four-month period. Dealing activity at the bank generates profits but speculation does not seem to contribute to this. We find that speculative positions fail to become profitable within a 30-min horizon. Also, the suggestion that exchange rate volatility would foster speculative profits cannot be confirmed. To explain daily revenues, neither the bank's speculative trading volume nor its inventory position, but only customer trading emerges as a significant determinant. Furthermore, a spread analysis reveals that there is hardly any room for revenues from speculation.

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## 1. Introduction

Nowadays, microstructure research in foreign exchange markets is seen by many as a promising avenue due to the “failure of the macro approach” (Flood and Taylor, 1996; Madhavan, 2000; Lyons, 2001). Our deeper understanding of the processes in foreign exchange is hampered, however, by the limited amount of data availability. In particular, profitability is a key source of information to understand the business, but useful profit

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figures are extremely rare. We contribute to the literature by analyzing a new data set which covers a much longer period than earlier studies. This allows us to apply new methods and to generate more reliable results. We find that our bank does make money in foreign exchange trading, but that speculation does not contribute much to this, if at all. Profits from speculation cannot be identified, either in an event study approach or by regressing potential determinants of profits. Moreover, analyzing spreads in non-speculative trading reveals revenues that fully explain overall profits. Thus, it is not speculation, but providing intermediation services to customers that seems to explain profits best.

The issue of trading profitability is a core element of Friedman's (1953) proposition that profitable speculation would stabilize exchange rate movements. Although the conventional view now seems to be that profits are neither necessary nor sufficient for stabilizing speculation it is nevertheless very interesting to know whether banks' foreign exchange speculation makes profits. Available evidence has not really been satisfying so far. There are several studies analyzing banks' position taking, with lower frequency data, such as monthly data (Fieleke, 1981) or weekly data (Wei and Kim, 1997). We know, however, that banks square their large open positions at the end of the day, hence these kinds of studies miss the bulk of intra-day position taking (see Goodhart, 1988). Unfortunately, evidence from intra-day data is even rarer. According to our knowledge, only two studies analyzing profitability in foreign exchange exist, i.e., Lyons (1998) and Yao (1998). Their studies are limited since their data sets are based on one week and five weeks of trading respectively, a disadvantage in identifying a volatile phenomenon (Lyons, 1998). So at this stage, there is still an obvious need for better data which allow for the application of more reliable approaches, and thus, for drawing more general conclusions.

Our data covers the complete tick-by-tick USD/EUR trading record of a bank in Germany over 87 days in 2001. This bank is a "regular" participant in foreign exchange markets as its activities show: first of all, the bank's trading volume in the market segment that we are analyzing is of about average size in comparison to the 33 foreign exchange trading banks in Deutsche Bundesbank's survey of the foreign exchange market in Germany (see details in the Appendix). Second, this bank offers the full range of products, i.e., spot as well as derivatives, it serves commercial as well as financial customers, it participates as a market maker and it conducts own-account trading. All this happens in several currencies. This bank is not as large as the banks covered by Lyons (1998) or Yao (1998) but it is not so tiny that it could be considered marginal, either. Moreover, the bank is not as specialized as Lyons' dealer who trades in the interbank market only. In fact, this bank's customer share of trading volume is 38%, close to the average figure of 41% for the world-wide foreign exchange market (BIS, 2002, Table B.3). Finally, we identify considerable profits in our bank's foreign exchange trading, whereas Yao does not. Yao's results are somewhat surprising in light of the heavy trading and risk involved and may be due to non-representative circumstances.

Beside the comparison above, there is further information suggesting that the evidence presented here is of potential interest beyond the single case. When analyzing the kind of trading behavior of this bank's USD/EUR dealer, we found that the characteristics are the same as those found in other studies (Osler et al. 2006, have examined this relation for other purposes). Moreover, foreign exchange markets seem to be so highly integrated that market-wide characteristics can be reproduced with our case data, such as the correlation between price changes and order flow in the sense of Evans and Lyons (2002). As a last

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