

Technical analysis and the effectiveness of central bank intervention

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Abstract

Using daily data on foreign exchange interventions of both the Bundesbank and the Fed we provide further evidence that central banks earn profits with interventions and that technical trading rules are unusually profitable on days on which interventions take place. We argue that what lies at the root of these seemingly contradictory results is that (a) intervention profits and trading rule profitability are measured over different horizons and (b) after interventions, exchange rates tend to move contrary to central banks' intentions in the short run, but in agreement with their intentions in the long run. © 2002 Elsevier Science Ltd. All rights reserved.

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1. Introduction

Technical analysis is a generic term covering a great variety of rules for taking investment decisions. What is common to all rules is that they condition on past prices. While there is a lot of evidence of technical analysis being used by financial market practitioners (e.g. Taylor and Allen, 1992), the question whether technical trading rules have any predictive power in financial markets is controversial (Malkiel, 1990). In recent years, however, evidence supporting the profitability of technical trading rules has been mounting (for review, see Neely, 1997). It has frequently been suggested that a source of the profitability of using technical trading rules on foreign

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exchange markets is government interference with free market forces through central bank interventions (Sweeney, 1986; Levich and Thomas, 1993). In a recent study, LeBaron (1999) examines the relationship between interventions and trading rule profits and finds firstly, that Moving Average trading rules are remarkably efficient at predicting exchange rate changes on days when central banks intervene and secondly, that technical trading rule profitability is dramatically reduced if intervention days are removed from the sample. This is very suggestive of the fact that there exists a connection between central bank interventions and technical trading rule profitability. LeBaron examines whether there exists a common factor causing both interventions and trading rule profitability, but finds no indications of such a factor. LeBaron's results support the suggestion that technical traders can gain at the expense of central banks. This, however, seems to stand in contrast to the results of Leahy (1995), who, also using daily intervention data, finds that the Fed made substantial profits with its interventions.

In this paper we confirm LeBaron's results and extend them by looking at a wider range of trading rules and by considering not only Fed but also Bundesbank intervention data. We also extend Leahy's results by giving evidence that the Bundesbank made very large profits with its interventions, too. We argue that what lies at the root of these seemingly contradictory results is that trading rule returns and intervention profits are measured over different horizons. We examine the relationship between interventions and subsequent deviations from uncovered interest parity for varying horizons and find that while exchange rates (net of interest differentials) move in a manner that is inconsistent with the aim of the interventions in the short run, the opposite is true in the long run. Moreover, we show that trading rule profits in the first days after intervention episodes end are highly negative.

The paper is organized as follows: after describing the data in Section 2, we confirm and extend LeBaron's (1999) results in Section 3. Section 4 provides evidence that both Fed and Bundesbank made substantial profits with their interventions. In Section 5 we address the effectiveness of interventions and examine the behavior of exchange rates after interventions over time. Section 6 concludes.

2. Data summary

The analysis uses daily USD/DEM exchange rates and daily USD and DEM overnight eurorates¹. The sample runs from January 2, 1979, to July 25, 1994. Table 1 gives summary statistics of the log first differences of daily exchange rates and of daily interest differentials². Exchange rate changes appear to have little drift, but

¹ Exchange rates are the New York market close (bid and offer side) from the Federal Reserve Bank of New York. Euromarket rates are bid rates around 10:00h Swiss time provided by the Bank for International Settlements.

² Exchange rates are arithmetic means of the bid and offer quotes. Moreover, daily interest differentials are determined by dividing annual rates of interest by 260. Dividing the interest differential by 360 would lead to an understatement of the influence of interest differentials because of weekends. We divide by 260 (=52×5 working days per year) instead so that interest differentials are correctly accounted for *on average*.

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