



Are all Central Bank interventions created equal? An empirical investigation

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Abstract

This study investigates the relationship between Central Bank interventions and technical trading rule profitability in the spot foreign exchange market. Because interventions are not necessarily exogenous events, we analyze the relationships between interventions by the G-3 Central Banks, financial market conditions, changes in monetary policy and technical trading profitability. By considering announced, unannounced, unilateral and coordinated interventions separately, we provide more insight into the interrelationships between these factors than previous studies. We find that the level of technical trading profits and market uncertainty increase preceding and remain high during interventions, especially announced and coordinated, but decrease afterward. A preliminary investigation of the possible role of a time-varying risk premium around interventions cannot be rejected.

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1. Introduction

Because the foreign exchange market is the largest and arguably most important financial market in the world, it is believed that if any financial market should be efficient it should be this market. Unfortunately tests of even the weakest form of market efficiency are rejected in the foreign exchange market – technical analysis is consistently profitable. This apparent inefficiency has persisted from the first studies (Poole, 1967; Dooley and Shafer, 1976, 1983) to the most recent studies

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(Neely et al., 1997; Gençay, 1999; LeBaron, 1999; Neely, 2002). Researchers have proposed that Central Banks may play a role in this apparent inefficiency because they can influence the supply and demand for currencies at any time. Consequently exchange rates are not always determined by the laws of supply and demand required for market efficiency (Friedman, 1953; Dooley and Shafer, 1983; Corrado and Taylor, 1986; Sweeney, 1986 among others).

Consistent with the hypothesis that Central Banks may be related to this apparent inefficiency, Szakmary and Mathur (1997), Neely (1998) and LeBaron (1999) find that technical trading profits were correlated with periods of Federal Reserve intervention activity during the 1980s and early 1990s. To better understand this relationship Neely (2002) uses higher frequency data and finds that the profitability of technical analysis actually begins before the start of intervention activities. We build on these studies by investigating differences across types of interventions (e.g. announced versus unannounced) and whether interventions and these periods of apparent inefficiency may be related to some other economic factor(s).

We address these issues using a dataset that is longer and more comprehensive than those used in previous studies. We have both a period of extensive intervention activity (the 1980s and early 1990s) as well as a period with little intervention activity (the mid- to late-1990s). This permits us to compare different types of interventions by the Federal Reserve, the Bank of Japan and the Deutsche Bundesbank. We compare announced and unannounced interventions as well as coordinated and unilateral interventions for these Central Banks.¹ The existing empirical literature tends to concentrate on Fed interventions with little consideration for differences between these types of intervention. To understand the relationships between these different types of interventions, technical trading returns and other factors theory suggests may instigate and/or influence the effectiveness of interventions we use a vector autoregression (VAR) technique. We investigate, for example, the relationships between factors such as the volatility of exchange rates and Central Bank interventions – Fed policy states it intervenes “to calm disorderly markets” and “signal” the desired level of the exchange rate to the market (Cross, 1998). We also investigate several relationships between financial markets, interventions and exchange rate movements proposed by theories of exchange rate determination (for a survey see Frankel and Rose, 1995). All of these relationships are analyzed in the context of technical trading profitability to see if they can help explain this apparent inefficiency.

We start our analysis by verifying that technical analysis can generate statistically and economically significant returns in the Deutsche Mark-\$ and Japanese Yen-\$ markets in our sample. We find an average annualized excess return of about 10% in the DM-\$ market, for example, which is statistically significant. Because the set of rules we consider were profitable over both our sample period and an out-of-sample test period, it is unlikely they are the result of an ex-post bias. The economic significance of the returns is suggested by their robustness to market frictions such as

¹ Unilateral and coordinated interventions were classified using official intervention data. Announced and unannounced interventions were determined from newspaper and newswire reports.

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