

NBER WORKING PAPERS SERIES

AN EMPIRICAL EXPLORATION OF EXCHANGE
RATE TARGET-ZONES

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Working Paper No. 3543

NATIONAL BUREAU OF ECONOMIC RESEARCH
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December 1990

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interest rate differentials. In most cases, changes in relative liquidity premia would not distort the normal relationship between interest rate differentials and exchange rate movements. For example, a tightening of domestic monetary conditions could lead to higher liquidity premia in a given country. As that country's banks sought additional liquidity from external sources, the domestic exchange rate would be expected to appreciate. The normal relationship might not exist during a liquidity crisis, when domestic financial instability might lead to both increased domestic liquidity premia and an expected depreciation of the domestic currency. However, since our sample consists primarily of industrial countries with stable financial systems it is unlikely that financial crises have distorted our empirical relationship.

19. In particular, we checked for outliers from both levels and log-differences of the series by computing descriptive statistics and carefully examining the data graphically. Some 150 apparent outliers were then compared with independent quotations from *The Financial Times*. We have also checked our data against internal IMF data, and provided our data corrections to Hali Edison and Graciela Kaminsky, who are performing independent research with the same data. Our programs, data and documentation are available upon receipt of three boxes of formatted high-density 3.5" diskettes. Most of the computing was performed in RATS 3.0, Micro-TSP 6.5, STATA 2.0, and Lotus 1-2-3 2.01; documents are word-processed in Word-Perfect 5.1. This offer expires one year after publication.

20. Thus a typical American interest rate might be $\ln(1+(8/100)) \approx .08$.

21. Our presentation has been greatly influenced by Tufte's (1983) superb monograph. Thus we typically present groups of data with greater than twenty observations in graphical format, and we repeatedly use small multiples graphs.

22. Government authorities may also defend implicit target zones which change over time and differ from declared target zones; splitting the sample may alleviate this problem.

23. This hypothesis can be confirmed in a more rigorous fashion through regression techniques, pooling data across EMS regimes and countries. The estimated standard deviation of the exchange rate is essentially uncorrelated with the estimated standard deviation of the interest rate differential; this result is also robust to inclusion of year or country fixed effects. There is also little evidence of any non-linearity in this relationship, although Svensson (1990c) derives a non-linear relationship between the width of a target zone and unconditional interest rate variability.

24. Svensson ((1990c) asserts that there should be a tradeoff between the conditional variances of interest rates and the width of the fundamentals band. Conditional variances of the log of the exchange rate and the 2-day interest differential are tabulated below. Indeed, the slope of the $\text{stderr}(e):\text{stderr}(i-i^*)$ relationship should provide an estimate of $-\alpha$. However, regression techniques which pool data across regimes and countries, lead to a *positive* relationship between conditional interest rate differential volatility and exchange rate volatility; this result is insensitive to inclusion of regime-specific effects. If the data are first-differenced (taking into account any country-specific "fixed effect"), this effect is wiped out.

The data below are standard errors of the residual from a linear