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Bear squeezes, volatility spillovers and speculative attacks in the hyperinflation 1920s foreign exchange

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This paper examines some of the characteristics of the foreign exchange market in the 1920s floating period. Nominal returns appear to exhibit properties consistent with asset prices on modern more well-organized financial markets; *i.e.* they appear to be well described by martingales and possess persistent time dependent heteroscedasticity. In order to deal with the extreme kurtosis in the exchange rate series we use robust inferential methods to test for volatility spillovers and shocks that might effect subsequent mean returns. Apart from some particularly abnormal 'bear squeeze' episodes the markets appear remarkably efficient. (JEL C22, E41, E31).

Institutional and technological changes in the last decade would strongly suggest that the integration of financial markets is increasing. Indeed, a number of studies have examined different speculative auction markets, including exchange rates, stock prices and commodity prices and have found striking similarities in terms of the apparent widespread martingale property, volatility patterns and reactions to news. Also, several studies have now analyzed the reaction of volatility between and within different asset markets, either in terms of volatility spillovers across different geographical locations

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or different asset markets. In particular, Engle, Ito and Lin (1990) and Baillie and Bollerslev (1991) looked at patterns of volatility between different exchange rates and market locations. Using data over the recent free floating period, these studies suggest that, while volatility may be temporally and geographically autocorrelated, the markets appear semi-strong efficient with price changes quickly incorporating news. Hamao, Masulis and Ng (1990) have also considered volatility spillovers between different equity markets; and find very interestingly that volatility was somewhat less important in the turbulent equity markets after the October 1987 crash.

This paper considers the structure of the foreign exchange market during an equally turbulent and interesting period of history, namely the era of widespread floating exchange rates in the 1920s. The foreign exchange market in this period was clearly less well organized than in the current float beginning in 1973. In particular the 1920s foreign exchange market lacked the sophisticated telecommunications systems, the organized trading structure and the range of financial instruments, such as options and futures, that exist in today's market place. Furthermore, the world economy was recovering from the devastating effects of World War I, with the turmoil of war reparations and hyperinflation in Germany. This also led to concerted speculative attacks on various currencies, most notably the French franc, which in turn prompted the French government to engage in a number of 'bear squeezes' in the hope of deterring future speculation. An interesting description of the unusual events of 1924 is available from Einzig (1937, pp. 280–281):

> The speculative campaign attained its climax on March 11, when the franc touched 117 [per pound]. Then followed one of the most memorable recoveries in the history of foreign exchange. It began with rumors of the conclusion of credits abroad. These rumors were subsequently confirmed by the announcement that a British banking group, headed by Lazard Brothers & Co., had granted the French government a credit of £4,000,000 and a few hours later an American Banking Group headed by J.P. Morgan & Co. had granted a credit of $100,000,000. The banks acting as agents for the French government began to buy francs heavily in an over sold market. Before very long francs become practically unobtainable. When speculators realized that the game was up, many of them tried frantically to cover their short positions at all costs . . .
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> The process of bear covering continued through April, and by the end of the month the spot rate was under 68 and the forward discount has declined to about 60 c. for three months. Even at that rate, however, it was undervalued compared with its discount rate parity, which shows that many bears still refused to cut their losses and were carrying their positions.
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> Their views of the temporary nature of the recovery were justified by subsequent developments. Following the defeat of M. Poincare at the General Election, the franc became distinctly weaker, and by the end of May it was once more over 84 to the £.

The analysis conducted in this paper finds that despite the severe disruptions that occurred and the relatively primitive market conditions, the 1920 foreign exchange markets were surprisingly efficient and in terms of the temporal dependencies very similar in character to today's market. However, in contrast to the general findings it does appear that some degree of volatility spillover did occur which was consistent with news on the French and Belgian