
FRBSF WEEKLY LETTER

Number 93-18, May 7, 1993

European Exchange Rate Credibility before the Fall: The Case of Sterling

In September 1992 the European Monetary System faced a currency crisis. The eleven countries participating in the Exchange Rate Mechanism (ERM), which involves maintaining cross-rate pegs to each others' currencies, experienced a series of speculative attacks on their currencies. Within a single week, these attacks forced two devaluations and, more importantly, forced the Italian lira and the British pound sterling to drop out of the ERM altogether; these two currencies have been floating since then.

Most onlookers agree that the ultimate source of the crisis was macroeconomic in nature. It stemmed from the high fiscal cost of German unification combined with the unwillingness of Germany's central bank to ease monetary policy in order to accommodate this expansionary fiscal policy (see the *Weekly Letter* of October 16, 1992). The immediate causes of the currency crisis, however, are not as clear. It is sometimes asserted that the underlying macroeconomic problems led speculators to doubt the credibility of European monetary authorities--that is, as the size of the underlying problems became apparent, credibility slowly diminished, a process that culminated in the currency crisis.

In this *Letter*, I investigate whether private financial market participants anticipated the currency crisis, and therefore doubted the credibility of the ERM, long before the system was actually attacked. I define a highly credible fixed exchange rate as one which the financial markets do not expect to change and an exchange rate with low credibility as one which the financial markets expect to be devalued. More precisely, I estimate and interpret quantitative measures of the credibility of European exchange rates, focusing on the period before "Black Wednesday," September 16, 1992, when the pound and the lira were forced to drop out of the ERM. I place particular emphasis on the case of the British pound during 1992. The pound is an intrinsically interesting case, since the British government, which has more direct control of monetary policy than most

other ERM members, was highly committed to maintaining the pound within the ERM.

The expectation of a sterling realignment is estimated using the "drift adjustment" technique, described in Rose and Svensson (1992). This technique distinguishes the "normal" movement of a currency around its peg from the more pronounced interest rate movements that would signal the expectation of realignment. Thus, the measures estimated reflect the private financial markets' assessment of the credibility of fixed exchange rate regimes.

The chief finding is that sterling's peg appeared to be credible throughout much of 1992. Indications that the market expected a realignment did not become really significant until September 1992, immediately before the crisis. Thus, there is no evidence that British and Italian policymakers reacted tardily to a situation that was clearly seen by financial markets as critical; rather, both policymakers and the financial markets were taken by surprise. This conclusion holds for the other currencies in the ERM as well.

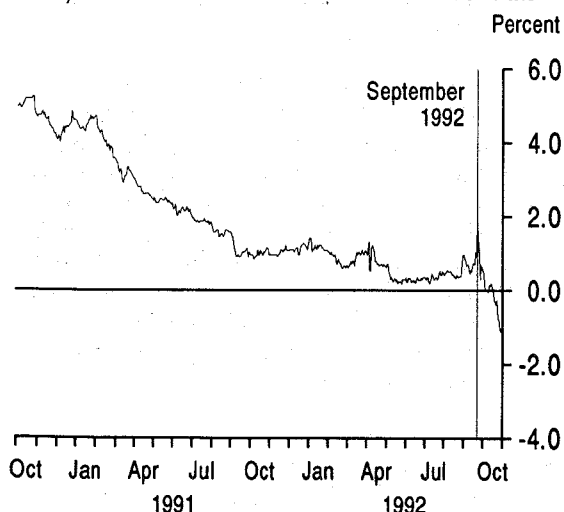
Interest differentials and exchange rate expectations

As a member of the ERM, the UK committed itself to keeping its exchange rate vis-à-vis Germany, as well as the other members, close to "central parity" rates chosen when the UK entered the ERM in 1990. The first signs of a breakdown in that commitment, that is, of a realignment of the pound, would have appeared in the difference between interest rates in the UK and in Germany. If British interest rates were higher than German interest rates for comparable securities, investors would expect a depreciation of sterling vis-à-vis the DM; otherwise the return on British and German assets would differ and investors would not hold both securities. Thus, the interest rate differential is a measure of the expected rate of change of the exchange rate, and it is the first place to look for indications of an expected sterling realignment.

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Figure 1 plots the difference between British and German interest rates for three-month Euro-securities from sterling's ERM entry in October 1990 through the end of October 1992. The vertical line marks Black Wednesday, the day sterling dropped out of the ERM. Clearly, interest rate differentials fell virtually continually after the UK joined the ERM. They rose only briefly in mid-September 1992, and even then only to modest levels (both compared with the previous few years and with other ERM participants). Thus, the raw data on interest differentials give little evidence that financial markets expected a sterling realignment until immediately before Black Wednesday. Interest rate differentials with both longer and shorter maturities yield the same conclusion.

Figure 1
Daily U.K.-German Interest Rate Differentials



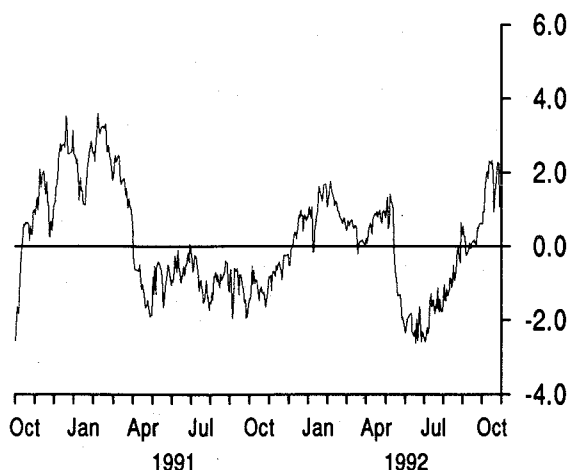
Adjusting for Exchange Rate Drift

The British-German interest rate differential remained low and positive throughout most of 1992; that is, the pound was expected to depreciate, but only by a small amount. However, this does not mean that the market viewed realignment as being unlikely. Sterling was a "wide-band" participant in the ERM; that is, its bilateral DM rate could move by as much as 6 percent around the central parity. But up until Black Wednesday, it also tended to drift back to the middle of the band fairly quickly after it had been pushed to the edge. This behavior was common for the other ERM currencies as well. So, for example, if sterling had appreciated to the strong edge of the band, it was expected to drift back

toward the middle again, that is, to depreciate somewhat. This expected depreciation within the band could fully, or more than fully, account for the total expected depreciation manifest in the interest differential. This suggests that interest rate differentials (the expected *total* exchange rate change) should be adjusted to take into account expected exchange rate drift *within the band* (using the "drift adjustment" technique) in order to yield a measure of realignment expectations (expectations of a change in the central parity). If this measure is high, then the exchange rate central parity is expected to be devalued, that is, the exchange rate peg is not credible. Clearly, higher realignment expectations are associated with expectation of a bigger or faster realignment (or both). Conversely, a negative value indicates expectations of a sterling revaluation (against the Deutschemark).

Figure 2 graphs expectations of a sterling realignment, that is, the interest differential after adjusting for expected daily exchange rate drift within the band. The graph plots an expected realignment of 5 percent (a reasonable guess, given the traditional size of ERM realignments) calculated using data over the period of sterling's participation in the ERM, October 1990 through September 1992. The vertical axis indicates the expected timing of the realignment times its expected size. Therefore, to find the probability of a 5 percent realignment in the next month, divide the measure by 12; for example, in October 1990, the measure was 2, and $2/12$ equals about a 17 percent probability of a 5 percent realignment. Adjusting interest differentials for expected exchange rate drift clearly leads to a more volatile and accurate measure of realignment expectations. (Again different maturities yield similar information.)

Figure 2
Expectations of a 5% Sterling Realignment



The derived series seems sensible; realignment expectations were low right after sterling's ERM entry but rose during the uncertainty surrounding the Conservative leadership conference of November 1990 when Margaret Thatcher was ousted as Prime Minister. Realignment expectations then fell following John Major's victory (which is not surprising, since he was instrumental in bringing the pound into the ERM), and remained relatively low until the 1992 general election. After the Conservative victory in the general election of April 1992, realignment expectations fell off dramatically. The most important message is that realignment expectations were quite low during the immediate run-up to August 1992. Realignment expectations in mid-August 1992 were comparable to those before the general election of April. Indeed, the negative values during the early part of the summer of 1992 indicate that insofar as the market expected any realignment, it was for a sterling revaluation.

Evidence for other ERM participants

Figures 3 and 4 contain data on expectations of a 5 percent realignment for Italy and France since January 1987, the date of the last serious ERM realignment before 1992. Italy was forced out of the ERM on Black Wednesday; while France has not devalued since 1987, its currency was attacked (and successfully defended) in September 1992; the case of France is similar to most of the other ERM members.

Just as with realignment expectations for the UK, the realignment measures for the other two countries rose dramatically in the late summer of 1992. There were few serious expectations of a European currency crisis until mid-August 1992 at the earliest (with the possible exception of the lira). Perhaps even more interesting is the fact that realignment expectations, even in the late summer of 1992, were comparable to those experienced by ERM participants during the previous five years of exchange rate tranquility. Thus, there is little evidence from financial data that the ERM in the late summer of 1992 was in a period without historical precedent. Rather, most interest and exchange rate data indicated "business as usual."

Summary

This *Letter* has used daily data to measure the expectations of financial markets concerning future ERM realignments. The empirical technique adjusted interest rate differentials by the

Figure 3
Expectations of a 5% Lira Realignment

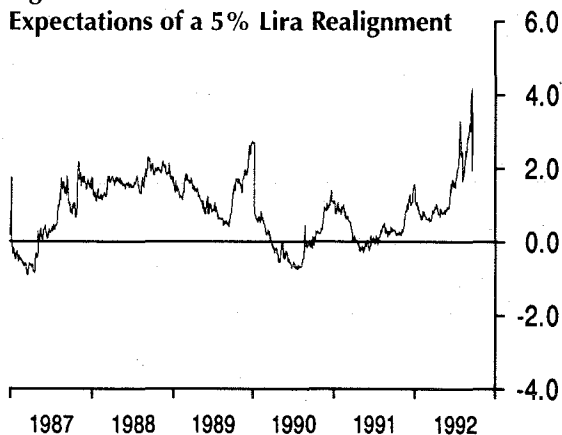
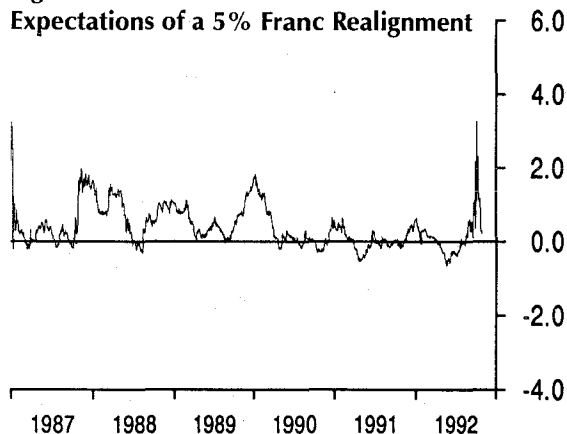


Figure 4
Expectations of a 5% Franc Realignment



expected drift of exchange rates within ERM bands. Two substantive points emerged. First, expectations of a sterling realignment were low throughout most of (1991 and) 1992, both absolutely and relative to other ERM currencies. Sterling's credibility was not in reasonable doubt until mid-August 1992, at the earliest. Second, the ERM (including sterling) had previously weathered crises of the magnitude that markets had expected even through early September 1992. In light of this evidence, it is hard to blame European policymakers for reacting slowly to a situation of growing tension, since there were remarkably few indications of a brewing crisis.

Andrew K. Rose
Associate Professor, U.C. Berkeley
Visiting Scholar, FRBSF

Reference

Rose, Andrew K., and Lars E.O. Svensson. 1992.
"Expected and Predicted Realignments." Mimeo.
U.C. Berkeley.

P.O. Box 7702
San Francisco, CA 94120

Research Department
Federal Reserve
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