The French Franc and European Monetary Crisis

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Abstract

The currency crises of 1992 and 1993 have shown that extremely strong pressures can be exerted on official parities when investors realize that significant monetary realignments may be imminent. In this paper, I present an empirical analysis of the 1992-1993 crises in order to determine whether speculators are able to predict exactly when devaluations will occur, and whether information on current events political and economic influence their expectations and if so, in what way. In particular, I analyze the expectations of the date of the devaluation of the French franc against the Deutsche Mark before the 1992 and 1993 monetary crises. The empirical analysis shows that before the outbreak of these two crises, Investors realized that the devaluation was imminent and that they were very sensitive to the information disseminated daily on the markets.

Over the last decade, the international financial markets have been affected mainly by the European currency crisis of 1992 and 1993 and, since 1997, by the Asian crisis.

A currency crisis is a complex phenomenon that can be analyzed in different ways. In this respect, the dynamics of the crisis is a fundamental element, particularly with regard to the role played by exchange rate devaluation expectations that accelerate the onset of the crisis. In fact, the European crisis has demonstrated the very high pressure that can be exerted on official exchange rates when investors perceive an imminent risk of substantial realignments of exchange rates. As evidenced by research in the field of international finance (Flood and Garber, 1984), there is a close link between the collapse of a fixed-exchange rate and the expectations of financial market participants. Also, the analysis of the determinants of exchange rate expectations has become a fundamental step in economics. In addition, the recent European currency crisis has revived the debate on the dynamics of speculative attacks for which two categories of models have been proposed. The first model (Krugman, 1979) is based on the assumption that a fixed exchange rate system must be abandoned when foreign exchange reserves are exhausted. Indeed, insightful speculators then inevitably attack the currency before these reserves are completely exhausted, thus causing a change of system. The second category of models underlines the risk that a crisis is self-fulfilling, in the sense that speculators predict a change in monetary policy in the country whose currency is weakened if the currency crisis occurs. In both cases, the study of the speculative and rational behavior of the agents makes it possible to determine the date and the extent of the attacks.

This means that there is a close link between the collapse of a fixed exchange rate system and the expectations of the players in the financial markets. It is therefore necessary, in order to understand the mechanisms that are at the origin of a crisis, to analyze what were the determining factors of the anticipations of realignment before the crisis occurs.

In this article, I therefore begin to answer the following questions: "do investors discern the exact moment when a devaluation will occur?", "Do they perceive that a change in the exchange rate

system is imminent?" And "what are the main determinants of expectations of devaluations?" but especially "does the economic and political news influence these expectations?".

Thus, we propose an empirical analysis of the expectations concerning the date of the devaluation of the French franc (FF) relative to the Deutsche mark (DM) before the exchange rate crisis of 1992 and 1993. I examine in particular Collins' approach (1984) which focuses on the determination of a quantitative measure of perceived anticipated realignment probabilities and on the econometric evaluation of the influence of news on the behavior of speculators. It is on the basis of this approach that I propose to examine the investors' expectations regarding the devaluation of the FF/DM exchange rate and to measure the sensitivity of these expectations to the new economic and political policies disseminated before the exchange rate crisis occurs.

This article consists of three parts. The first part is mainly devoted to the modeling of foreign exchange expectations and to the study of how Collins' model works. The second part presents the empirical results obtained and the last part is mainly devoted to comments and conclusions.

A brief review of the Collins literature (1984, 1986) was the first to use interest rate differentials for the study of expectations of realignments in the EMS. The model she proposed for determining the dates of the realignments is not similar to the literature that interprets the EMS fluctuation margins as target areas. First, instead of proposing to measure expectations of devaluations, Collins studied the perceived probabilities of devaluation in various future periods. And most importantly, she has studied the impact of different types of information on the expectation of the date of the anticipated devaluation.

Theoretical work on the target areas, on the contrary, consists in studying the behavior of exchange rates, starting from the assumption of the credibility of the target area and that there is no anticipated probability of realignment (Krugman, 1991, as well as Bertola and Caballero, 1992, and Kirrane, 2003). Generally, the studies carried out as a follow-up to this work are based on the following assumptions: if a target area collapses, the exchange rate floats freely (Flood and Garber, 1991) or, if a realignment leads to a new target area appears likely, this probability is exogenous (Svensson, 1992). Empirical verifications of first-generation target zone models do not support the theory because these models do not take into account the likelihood of realignment. Kirrane (2003) concluded that he found little evidence of target areas. At this point, as Svensson (1992) has pointed out, "experience may seem like an excellent example of a beautiful theory belied by very disturbing facts".

The natural extension of the first-generation models has been to support the hypothesis of imperfect credibility of the target area. In fact, the high interest rate differentials that were observed just prior to most of the realignments in the EMS exchange rate reflect the imperfect credibility of the EMS. As a result, second-generation target area models explicitly account for realignments and use the risk of devaluation as a measure of the credibility of the target area. Bertola and Caballero (1992) assume that the realignment occurs at the margin while in the Bertola and Svensson (1993) model the devaluation is assumed to be independent of the exchange rate position within the fluctuation margin. In fact, realignments under the EMS occurred both when the exchange rate was close to one of the limits of the fluctuation band and when it was within the margin and very close to the exchange rate pivot.

The empirical checks performed using the second-generation models were much more conclusive than those based on the first approach. Rose and Svensson (1991) argue that leaving

open the possibility of a realignment probability improves the empirical fit of the models to the EMS experience.

Rose and Svensson (1994) used these models to understand the causes, effects and behavior of European exchange rate realignment expectations during the existence of the EMS and in particular in the run-up to the crisis. They found that there were few macroeconomic factors in the formation of realignment expectations, except for a link with inflation differentials. They have discovered, and this point is even more interesting, that the countries that have moved closer to Germany in terms of macroeconomic convergence do not seem to have been consistently granted increased credibility on the part of the financial markets. . Their results do not show that the member countries of the exchange rate mechanism that enjoy higher credibility, especially the Netherlands, have gained their reputation thanks to a markedly different behavior, at the macroeconomic level, from the adopted one by countries like Italy. Essentially, they show that expectations of realignment of exchange rates seem, as a rule, relatively disconnected from macroeconomic phenomena.

The results of their work came to support the idea that the currency crisis has been caused by phenomena whose gestation periods are neither long nor detectable. This leads me to wonder whether there is a link between expectations of realignment of exchange rates and the economic and political information disseminated daily on the markets.

However, these authors treat the anticipated devaluation primarily as a residual (ie, as the difference between interest rate spreads and exchange rate expectations from one realignment to another). Moreover, their approach does not distinguish between the expected range of exchange rate variation and the perceived probability. Nor do they distinguish between realignment probabilities perceived for different horizons, as Collins (1983) has done.

On the other hand, the analysis proposed by Lindberg, Söderlind and Svensson (1993) is much closer to that of Collins. They studied the expectations of devaluations of the Swedish krona from 1985 to 1992. Their objective is to measure the firmness of these expectations and to deduce the date of anticipated realignment. To this end, they use the method of "drift correction" proposed by Bertola and Svensson (1993). In fact, they begin by estimating the expected rate of devaluation at different horizons, and then use these results to estimate the expected date of devaluations.

There is, however, a big difference between the target area work, including that of Lindberg, Söderlind and Svensson (1993), and the analysis proposed by Collins. While the former propose a method to measure expectations of market realignment, without ever seeking the causes of these expectations, Collins proposes a method to study the determining factors of realignment expectations.

Exchange Rate Expectations and Interest Rates Exchange rate expectations are not observable quantities. As a result, most of the recent work on devaluation expectations, (Collins, 1998, Bertola and Svensson, 1993, or Chen and Giovannini, 1993), is based on the assumption of non-interest rate parity. covered in exchange (UIP). In other words, interest rate differentials are used as a proxy for realignment expectations, Kirrane (2003).

Periods of uncertainty about future exchange rates are typically characterized by extremely high and volatile interest rates. It seems natural to interpret this instability of interest rates as an indication of the imminence of a radical event on the market - that is, a devaluation. In particular, the rates on the Euro-currencies are then more volatile than in normal times. Collins is therefore

using rates on euro-deposits on different terms to determine a quantitative indicator of the likelihood that speculators will attribute to a realignment in the future.

It is assumed that: (a) market participants invest in domestic and foreign securities of various maturities; (b) investors are risk-neutral; (c) arbitrage in perfectly competitive Euro-currency markets will ensure the equalization of expected returns on available assets, so that the assumption of uncovered interest rate parity in exchange checked:

(l) And (St + k) (l + i * t; k) / St = (l + it, k)

where it .k and i * t; jt are the nominal returns at time t on term deposits of k periods denominated in national currencies and foreign currencies respectively; S t is the price of the foreign currency expressed in the national currency at the date t, and Et (S t + k) is the expected exchange rate at the date t + k.

The expected return (in national currency) of an acquisition of foreign currencies made today by investing in a deposit of k periods denominated in foreign currencies and reconverted into national currency at maturity, is equal to the yield of a foreign currency deposit. periods denominated in national currency. This relationship should be valid for all maturities of assets available in both types of currencies.

Equation (1) can also be written as follows:

(2) And (St + k) = l (l + ir.k) / (l + i * rk) lSt in which exchange rate expectations for a given period k are linked to the interest rates applicable on the same maturity. It is also assumed that, just before realignment, exchange rate expectations are unambiguous. This means that a weak currency could be devalued or remain unchanged, but could in no way be reevaluated. The expected exchange rate can therefore be represented in the form of a weighted average of the expected exchange rate in the absence of devaluation (S * t + k), and the expected exchange rate in case of devaluation (Zt k). The weights are the probabilities corresponding, respectively, to the absence of devaluation and the occurrence of a devaluation.

(3) and (St + k) = (l-Pnk) S * t + k + Pt: kZ ^ k

(S * where t + k) denotes the expected exchange rate in the absence of devaluation, (Zrk) the expected exchange rate probability in the subjective presence of a devaluation devaluation and Prk is produced note that between date and / or models date t + of k. It targets areas of (Svensson, two parts 1993),: the variation (Zrk) should be expected to be broken down into pivotal rate into and the anticipated variation in percentage deviation from the central rate.

Then, Collins assumes that the future spot rate expected by investors in the event of no devaluation is equal to the current spot rate, so that:

(4) S * l + k = St

This assumption is justified in the framework of the EMS within "almost which sets the". This was of the exchange rate, in particular, is, normally, during a period of five years, from January 1987 to September realignment 1992, had instead taken place between the currencies of which no country participating in the EMS, which has thus benefited from the longest period of stability since 1979.

One anticipates, supposes if one also admits that an exchange rate devaluation must occur between the date t and the date t + k, is an arbitrary function information available at time t, but independent of horizon k, so that:

Given equations (2), (4) and (5), equation (3) becomes:

(6) [(l + irk) / (l + i * r, k) l St = St + (Zt -St) Prk

Equation (6) underlines the relationship between the term structure of interest rates corresponding to a maturity given k periods and the subjective probability of k periods.

That a devaluation occurs during the multinomial law. The key-term attribution the occurrence of the equation of a (6) devaluation is the probability between the dates date of distribution of t and devaluation t + k, Pt k of. One anticipates probabilities can consequently defining assigned to study on one of the law the future time intervals. Collins proposes to use a multinomial law, whereby individual probabilities are assigned to the assumption each of the intervals of a defined time devaluation, knowing that these intervals correspond to the durations of the available term deposits. The fact that a realignment takes place during a given period precludes it from occurring in other periods.

Suppose there are 7-1 different deposition durations, ranked from shortest to longest. At the t date, there are possible future states of nature. It is possible that a devaluation takes place before the expiry of the shortest deposit, between the maturity dates of the securities and the (k + 1) th deposit, or that there is no devaluation before the maturity of the deposit. the longest (Collins, 1984, page 8). Let us introduce stochastic variables Nt, j = l, ... J on which depends the occurrence of a devaluation at a date fixed at j units of time after t. Let r * tj be the probability that Nt occurs, and y is the date on which the devaluation actually takes place. Let us define:

(lO) NtX = 1 if <y <t + l, NtX = 0 otherwise

Ntk = 1 sit + kl <y <t + k, Nt k = 0 otherwise

Nt = 1 if t + J <y, N tj = 0 otherwise

(II) Ptj (NT j = l) = r *tj

where

(12) £ r * tj = l

7 = 1

the probability that a realignment to occur before the end of th ^ deposit is then:

(13) Pt

; = i

It should be noted that Pt k is a true subjective probability. Since true subjective probabilities are not observable, we must estimate Pt k. From equation (6), the relative interest rates on different term deposits denominated in national and foreign currencies provide information on Pt k. These estimated values are, however, affected by measurement errors arising from the differences in the quotation dates of the rates and the fact that the average bid and ask prices are used. We therefore write:

(14) rtJ = r * tJ + andJ

where rt represents the estimated probabilities and (1) the measurement errors.

The following, the place plus of the general equation (6)

we use the relation, :multinomial Logit model. It is now necessary to define the distribution of

(15) [(l + //: t) / (l + f 0] S, = St + (Zt -S,) £ 7 = 1

r,

econometric probabilities for To be able to do this, perform we use an analysis a version of multinomial Logit models (MNL) which for simplicity we ask [(l + irk) / (l + i * t; k) l = ak Then, assuming hypothesis can write:

term deposits of 1, 7 and 30 days, we rest to obtain on the hypothesis the result according to which is the proportionality of the probability to exp (Xtbt have vector of), where the parameters investors Xt represents specific to the date information /, to and where bt result is one of which

(see Collins (1984) for more details) Sik = l:

(ax-l) St = (Zt-St) rtX

This hypothesis version according to which models the information MNL rests are on the same for each of the pos although they may be likely to have one of the different effects of devaluation occurring on the rtX = [Sxl (Zt-St) l (at-i);

of J different periods:

in the previous posing becomes [St / (Zt-S,)]:

= $

the expression (20) r * .. y = exp (X, b.) / £ exp (X, b.) , j = 1, ... J

(16) r, 1 = P ("1-1).

The equation used to estimate If £ = 7: (a7-l) St = (Zt-St) (rtX + rtJ) econometric is obtained from the expressions ;

(14) under and (20). The following equation:

(14) can also be written

from where:

(21) rtj = r *, j (l + and / / r * tj)

(fl7-l) P-rM = rt1;

From the logarithm of equation (21):

in replacing expression becomes rt. :

by equality (16), the last

(22) log (rtj) = log (r *, j) + log (l + -etj / r * tJ)

then, substituting the logarithm of equation (20) (17) r, 7 = p (a7 -ax)

in equation (22), we obtain:

If k = 30:

(23) log (r, j) = Xtbi-log 2> p (X, *,) + v. f, j (18) (RFIM = P (fl30- * 7)

Consequently, the general expression is:

or

(19) rft; = P (ay-fl; _)*.

AVD = log (l + and JLR tj)

where indicative is the probability of remembering that realignment rt is one to the value during the period (t; t + j).

In equation (23), the dependent variable is a function of the coefficient of Z p unknown from the equation and unobservable, (19) Collins by the suggested channel.

To be determined from the equations the probability (1 6), (1 7) and (anticipated 1 8) we can from a realignment respectively on a day, seven days and one month, provided that we know p (2), that is, using the ratios rt I rt i, j = / to solve this problem. denominator the series of probability coefficients applied to the longest maturity, equation (23) becomes:

Zt to evade In this the problem, next part, I will indicate a means

(24) log (rfi / rtJ_x) = Xt (bt -bt_x) + (v1: - v1; ._,)

This e expression is an indicator of true probability ratios that are independent of the unobservable magnitude of anticipated devaluation. The terms that are a function of Zt (the P coefficients) disappear in the construction of the ratios.

In equation (24), the endogenous variable no longer represents the expected probability that a realignment will occur during a given period; it represents the tendency of this probability in relation to the probability that the event will occur at another future date.

Suppose y is 1 day and 7-1 to 30 days, and the logarithm of the series (rt I rt s_x) has a positive, constant or negative trend. If the trend is positive, it means that speculators predict that a devaluation will take place in the very near future and that their transactions will focus on the shortest maturities. A constant trend indicates that speculators do not anticipate a realignment or do not know exactly when it will occur. Finally, a negative trend means that speculators believe that a realignment will take place at a date close to the most distant deadlines.

In order to analyze the influence of political and economic news on devaluation expectations, all the relevant information disseminated on the market is introduced into the right-hand side of equation (24).

The logarithmic approach to success has the following particularity: it provides estimates of the impact of new information on the likelihood of devaluation in different time periods and, therefore, to respond to certain questions concerning the anticipated date, even if it does not allow identification of the individual value b. It is also useful for studying the impact of information on forecasts of the likely date of devaluation, as it draws a clear distinction between expectations concerning date and those relating to (anticipated) magnitude. .

Empirical Analys is empirical

The analysis is divided into two parts. First, I determine the series of probability indicators rrX, rvl and rr30 from expressions (16), (17) and (18); then I analyze the probabilities that speculators attribute to. the occurrence of a realignment within one, seven and thirty days respectively. It is useful to have a very detailed analysis of expectations for exchange rate devaluation before crises, in order to understand whether speculators were mainly influenced by news of macroeconomic imbalances or by destabilizing rumors (3) distributed on the markets. Thus, I will be able to determine, among other things, whether crises have tended to be self-validating or whether they have emerged according to basic economic data (see Eichengreen and Wyplosz,

1993). Second, I propose an application of the logarithm of success approach, presented in the previous section.

The database consists of daily data covering the period from 1 June 1992 to 2 August 1993. Daily data are used to account for variations, including minor changes, that affect devaluation expectations. These data are provided by the Bank for International Settlements. The spot exchange rates are the ECU quoted prices at 14:15 Brussels time. Exchange rates correspond to the equivalent of one ecu in units of national currency. For periods of one day and 30 days, the interest rates on the Euromarket correspond to quoted market rates at around 10:00 Swiss time. For a period of 7 days, however, the Euromarket rates correspond to the average of the buyer and seller rates published in the Italian newspaper "Sole 24 ore".

France: 2 June 1992 - 2 August 1993

Chart 1 shows the FF / DM exchange rate from June 1992 to August 1993. Over this period, the FF / DM exchange rate remained within the upper limit of the fluctuation band. This upward trend was the result of several events: - the exchange rate crisis of September 1992 and the approach of the French referendum scheduled for September 20;

- the massive speculative attack of November 1992 against the Danish and Swedish crowns, the French franc and the Irish pound; in particular, the huge attack on the Swedish currency forced it to float on November 19, which had the effect of triggering speculation against the franc; - the high level of German interest rates. In fact, the financial markets doubted the ability of countries like Denmark, France or Ireland to continue to anchor their exchange rates - and hence their interest rates - on those of Germany, while their economies could not afford it.

As a general rule, we can say that the entire period was marked by a gradual weakening of the French franc. In fact, the policy of the strong franc led by the new Conservative government, named after the March 1993 elections, and the publication of an ambitious recovery plan for the French economy have not helped to prevent the speculation wave that fell on the franc in July 1993.

The crisis of September and the French referendum. Let us now examine the expectations concerning the devaluation of the French franc. The likelihood indicators, rrX, rt, 7 and rr30, were derived from expressions (16), (17) and (18) and from the devaluation hypothesis whose expected magnitude was 2.7%. . In fact, in July 1993, there was no official realignment but a simple widening of the fluctuation margins for all currencies participating in the exchange rate mechanism. Although the French franc did not undergo any official devaluation, it was devalued simply because of the maximum use of the new fluctuation margins.

I suppose that the adoption of wider margins led to a de facto devaluation of the French franc. In fact, after the widening of the fluctuation band, the FF / DM exchange rate remained above the central rate until December. I therefore selected the percentage difference between the exchange rate FF / DM and the central rate five months (4) before and after the crisis. I then calculated the average values of the deviations thus obtained as well as the difference between the average values. I found a devaluation rate of 2.7%, which is a good approximation of the devaluation that the French franc actually suffered as a result of the widening of the margin.

Charts 2, 3 and 4 represent the series rrl, rr7 and rr3Q .rrX and rrl, respectively, illustrating the approach to the September crisis and that of the French referendum. Their similar behavior shows that investors have seen the weakness of the French franc.

Chart 1: French franc / Deutsche mark

^ Vv ^ '^^ - A

"^ V / v * -y

3,20-1

June August 1992 October H December February April 1993

June H August

Chart of 2

devaluation: French francs shown

: probability

Graph 3 devaluation: French franc

indicated:probabilities

-v ^ - ^ * ^ A -wtftU - "** ^ i

^ Jh -jMnh June Chart -I August 1992 1- 4 October devaluation: French franc December -i f indicated e-February 4 ^ i: probabilities -i April rA .. * + *, 1993 ..A- - ^ June UJ 1- August - 1.6 -2.4 -3.2 -4.0

> JU ~ | J ^^ | ^ . "^ V / ^ w ^ ,, ..- 'YI,

Jum H August 1992 October 1- December February April 1993 -I

June h-

August

According to chart 4, the negative values of r;. 30 reach a maximum in the second half of September, investors were not expecting a long-term devaluation of the French franc, and therefore did not demand high returns on 30-day deposits are focused on short-term operations e)

In October (Charts 2 and 3), the probability of an imminent devaluation of the Swiss franc decreased as a result of Germany's commitment not to proceed with a realignment or because of a very substantial increase. French interest rates. However, although speculative pressures on the franc temporarily eased, markets were not convinced of the French government's ability to keep interest rates high for a long time.

The troubles on the foreign exchange markets from November to January The probability indicators (Charts 2, 3 and 4) illustrate very well the troubles on the foreign exchange markets from November to January. The fact that rvX fluctuations are stronger than those of rrl indicates that economic agents have sensed an imminent devaluation of the French franc. In contrast, rr30 displays record negative values.

In fact, the markets were keeping a close watch on the French franc, as its link with the Deutsche Mark was considered the backbone of a fragile European exchange rate mechanism.

The recovery and the July crisis (Chart 3) fell exactly on 4 February, when the Bundesbank unexpectedly set the Lombard rate at 9%, a drop of half a percentage point, and the rate discount of 8%, a decrease of a quarter of a point, thus reducing the tension on the foreign exchange markets. At the same time, RRX began to decline. Its record negative value for the month of March coincides with the publication of the latest public opinion polls on the French political

elections of March 21 and 28. These polls foresaw a landslide victory for the conservative alliance, which was to win nearly 80 percent of the seats. Given that the main issues addressed in the Conservative agenda were the defense of a strong franc, the support of increased European unity and the strengthening of cooperation with Germany, the markets once again believed in a recovery of French economy.

rvl and rt; 30 are both stable from April to July. The Conservative victory in the March elections, along with the five cuts in short-term interest rates since the ruling right took power, have reduced the exchange rate

FF / DMto a very high level. close to the central rate (Chart 1).

But during the first week of July, the French franc was again in the line of sight of speculators. In the space of a few days, it appeared that the French franc risked being devalued, even forced to leave the system. In the second half of July, as shown in Charts 2, 3 and 4, markets suddenly began to view the devaluation of the franc as a very likely event. rrX etrvl recorded a sharp increase while rt.30 decreased. Investors have therefore perceived the imminence of a currency crisis.

It is interesting to note that these findings are corroborated by the results of empirical work Campa, Chang and Reider (1996), who tested the credibility of the target areas by implementing a methodology based on arbitration and using options crossed in the exchange mechanism. They found that the mark-to-franc exchange rate margin was perfectly credible for the period between September 1991 and August 1992. Then, as I indicated above, the periods between August and October 1992 then between November 1992 and April 1993 were characterized by imperfect credibility; while from April to the beginning of July 1993, the margin was credible.

Econometric analysis For the econometric estimation we use the logarithm of the absolute value of the following ratios:

* 1 = rf; l / (r; 30 - '.; 7)

= 7 ^ (^; 7 - ^; l) / (rr; 30 - ^; 7)

which represent respectively the probability attributed to the occurrence of a one-day realignment with respect to the probability that a realignment takes place between the 8th and 30th day, and the probability that a realignment occurs between the 2nd and the 3rd day in relation to a realignment between the 8th and 30th days.

To estimate the two series RI and RI from equation (25), it is appropriate to choose a series of information that may have affected investors' expectations on the date of devaluation. To make this choice, we examined all the political and economic information considered relevant during the periods preceding the crises. Table 2 presents the economic and political information we examined. Among this information, we selected those that, in our opinion, were such as to suggest to investors not only that there was more likelihood of a devaluation occurs, but there was a close second more future. Probabilities that it takes place in and the seventh day compared to a devaluation between the eighth and thirtieth day.

This information was introduced in the form of dummy variable market variables. The idea to is 1 to count to check if their only new information can have the effect of modifying the expectations of the speculators.

The estimates were made from the following equations:

(RI); a is the constant; T is a corresponding trend risk of change in time, in which investors are included because of

the timing of the change in the exchange rate during the period. And denotes the exchange rate national currency / ECU corresponds and the Et_x rate the rate of cash exchange delayed currency;St

National/ DM. I assume here that investors interpret fluctuation margins that as et S t is sign approaching weakness

(26) Xl = ax + BXT + ErCx + dx Et_x + formerly St

of their currency and, therefore, the imminence

+ fD + LWE

of a realignment. I therefore include the exchange rates FF / ECU and FF / DM in the regressions.

(21) Xl = a1 + b1T + c1Et + -d1Et_x + e7St

The D represent the dummy variables set to one on the day of the release of the new information on the markets; WE is a variable adjustment where XI and XI represent the logarithm of the absolute value respectively, of the probability attributed to the occurrence of a write on the first day of the month, with respect to a devaluation between logarithm of the eighth the value and the thirtieth absolute of the day (RI), probability and attributed to the occurrence of a devaluation between the allows "weekend effects" to detect, (of the case "effects appropriate, Thursday"). As Collins has suggested, it is possible that investors believe they will produce only one on a Monday, realigning because it is more likely to be a weekend away. If investors and traders believe in the "weekend effect" price, then the probabilities attributed to the occurrence of a devaluation in a table interval given time should increase according to the variable number of dives. Mondays adjustment included is in so this introduced interval in a constant the estimate under Thursday to take into account that Monday may be perceived as the day when a realignment is most likely to occur.

Table 2 Equations 1 reports have been tested to average results. The Hausman specification test (1978) in order to verify, if necessary, the existence of a correlation between the national currency exchange rate / ECU and the residues (Collins, rejected in 1984, very clear page 18). For the hypothesis the two equations, none was and therefore each of them was estimated by the ordinary least squares method.

Given the given autocorrelation and the heteroscedasticity problems posed by the existence of the error term, we included the Newey-West covariance estimator in the OLS procedure. We have made the assumption according to the test which Fisher's F all so the coefficients, with the exception of the constant, are zero. The results obtained made it possible to reject very clearly the null hypothesis.

Account is not held realistic of the nature of daily believing that given the regressions, it can allow to fully explain the estimated variability that of the series values considered of R2. We are close to 0.50

Note: Student's t's are in parentheses.

were a sufficient result.

155 XI XI Time 354,868 (5,235) 0,126 133,425 (1,983) 0,035 FF / DM -318,272 (-4,533) (2,500) -250,004 (-2,215) (0,822)

FF / Ecu FF / Ecu (-1) 97,289 (2,276) 6,541 90,401 (1,401) 15,942 D1 -1,897 (1,041) -1,590 (0.851)

D2 D3 (-4,909) (2,738) 2,393 1,989 (-2,466) (1,494)

1,813 1,259 DA (2,629) (2,714) 1,572 (0.937) (1.787) 1.308

D5 WE R2 (-4.066) -1.711 (1.773) 1.488 0.806 (-0.170) (-2.256) -0.258

-U, 946

0.669 # 2 (aj) 0.713 0.511 F 14025.3 (sl 0.000) 3271.466 (s, l, 0,000) DW 2,804 2,305 Hausman test 0,390 (sl 0.999) 0.799 (sl 0.999) Chow test 1124.6 (sl 0.000) 474.558 (sl 0.000) Obs. number 35 35

Table 2: France: from June to August 1993

New dates auxiliary variables June 17 21 june the unchanged.

UNECE ad Bundesbank Meeting in Copenhagen.

the German discount rate and the Lombard rate remained

Dl

1 July Lombard Bundesbank 8% fixed rate is the one decrease discount from 0.25 official.,

to 6.5% a decrease of 0.5 points, and the rate July 2 The Banque de France reduces the official discount rate.

July 7

The INSEE decline of the year. publishes the 0.7% of GDP economic report and a second on the very strong increase of half of 1993. This report unemployment rates expected before the end

D2

July 15 German Meeting.

Bundesbank Committee Expected and Forecast of Lower Interest Rates

D3 21

July The German courts of the six announce last months.

an increase in their monetary aggregates M3 stronger than expected

D4 29

July The Bundesbank lowers its Lombard rate by 0.5 point but leaves the discount rate unchanged. D5

August 1st

That their ministers now pivotal courses of Finance currencies will fluctuate countries participating in the mechanism margins of 15% above the exchange or EMS beneath agree. It is important to note that the XI series will always be more volatile than the XT. The influence of rrX is obviously stronger for XI than for XT. What is reliable is to say that of the analysis XI. Of XT should be more results We are going from the estimate proceed now to the analysis of the results of the estimate I tested a break point between the periods of June 2, 1992 to June 16, 1993

and June 17, August 1993. On June 17, 1993, at a meeting of the Bundesbank, altering their German discount rates have neither decided the Lombard rate did not. The markets believe that most currencies would change their rate of interest from a country to a serious participant level, as well as to the high mechanism to maintain German rates. They knew, in particular, that France would not advance unemployment anytime soon and one of the slowdown due to GDP growth. Investors doubted the ability of the strong franc to maintain its position within the EMS. The results of the Chow test (Table 1) confirm this hypothesis. Therefore, the period taken into account for the econometric estimation is from June 17 to August 2, 1993.

The quality of the adjustment is good. In the first explained equation, while 80 in% of the second variation 66 of% XI of is the temporal variation is of positive XI is and explained very significant The trend for XL The one-day probability that the franc is devalued has therefore increased over time. As we have seen the Bundesbank on the graph of 17 June, after the markets meeting the Committee expected to an imminent devaluation of the franc. In fact, forex traders, economic data after having and examined fundamental policies closer to France, decided that the franc was a fair game. The French government was in a brutal reaction, political stalemate. On a social level, if it increased it was risking an interest rate to defend the franc while the French economy was going through a period of recession the policy also the marked franc. Strong, that the other government leaves, the abandonment was of firmly political committed to, would have been an error in both cases, economic agents did not fail to be interested in the exchange rate, and in particular to the FF / DM exchange rate since France was closely linked to the significant monetary policy.

Let us now examine the influence of news on devaluation expectations.

Dl = 1 from 17 June 1993, the date on which the Bundesbank announced that the German discount rate and the Lombard rate remained unchanged. D 1 is the most significant dummy variable for both were regressions. Very responsive This is to say that the Bundesbank has taken the markets in monetary policy.

D2 = 1 from July 7, 1993, in other words from the publication of the economic report of the INSEE foresaw on a decrease second half of 0.7% 1993. of GDP This and a report very sharp increase in the rate of unemployment before the end of the year. The pessimistic forecasts of the INSEE, as strict as the policy carried out by Germany, without money gave more to the

speculators of good reasons to bet against the French franc, which fell to 3,396 compared to DM. D2 is more significant for XI than for X7. From June 17, the markets have clearly perceived the veiled weakness of the franc; in July, they were waiting for confirmation of the French's inability to defend the franc thanks to high interest rates. In fact, the franc is only attacked the day after the publication of the INSEE report.

D3 = 1 from July 15, the date of the long-awaited meeting of the Bundesbank Committee, which was expected to see a sharp drop in German interest rates. Since an increase in French interest rates was excluded, only a reduction in German rates could prevent the franc from being devalued or leaving the exchange rate mechanism. D3 is very significant for XI. As a result, the announcement of Germany's monetary policy decisions had more impact on expectations of overnight devaluation than on expectations of a devaluation over the remainder of the month.

D4 = 1 as of July 2, due to the announcement of an increase in Germany's M3 monetary aggregates stronger than expected over the last six months. This information reduced the hope

that the Bundesbank would lower rates at its Committee meeting on 29 July. As a result, expectations of the devaluation of the French franc intensified.

D5 = 1 from 29 July, ie from the expected meeting of the Bundesbank Committee.

In conclusion, all the dummies corresponding to the German news in terms of monetary policy are very significant.

The adjustment variable used to detect the "weekend effect" is significant in both equations, but it is of negative sign. With the week-end approach, the probability of a one-day devaluation versus the probability of devaluation for the remainder of the month decreased, and this is also true for the probability that a one-week devaluation to that a devaluation takes place during the rest of the month. Investors probably thought that governments, if they met to negotiate, would support the French currency. The weekend approach could therefore be seen as an opportunity to delay realignment.

Comments and conclusions

My analysis pursued two main objectives. The first was to determine whether speculators were able to predict the exact dates of the 1992 and 1993 devaluations. The second was to find out if they used - and in what ways - daily economic and political information to base their expectations. exchange rate devaluation prior to the 1993 currency crisis.

In the periods immediately preceding the crises, economic agents focused mainly on short-term trading. These results confirm that they have correctly apprehended the events that would occur on the markets. The analysis of the likelihood indicators revealed that investors were aware of the imminence of a devaluation but were not able to predict the exact date.

These results are in contradiction with Collins' conclusions that the economic agents were perfectly capable of predicting the exact date of the realignment in 1983 between the French franc and the Deutsche Mark. On the other hand, they corroborate the results of Cetorelli's (1991) analysis of expectations for the realignment of the lira in the periods preceding each realignment in the EMS from 1979 to 1990.

The results of the estimate showed that speculators were very sensitive to the information disseminated daily on the markets. And, before the crises, they were very reactive to every rumor about a possible change in monetary policy (yet already strict) of the Bundesbank. It can also be noted that before the crisis, rumors seemed to have a greater destabilizing effect on economic agents than well-founded news. This leads me to think that the mechanisms of self-validation of expectations have played a role in the dynamics of this currency crisis.

The turmoil in the foreign exchange markets during the summer of 1992 and the summer of 1993 reflects the intensity of the pressure that can be exerted on official exchange rates when market participants perceive an imminent risk of significant realignments of exchange rates. Of course, my point is not to argue that the turbulence that affects exchange rates is caused by market pressures, but on the contrary that underlying macroeconomic divergences, combined with self-validation mechanisms anticipated crises have fueled these market pressures.

Compared to the classic literature on exchange rates in terms of expectations and the currency crisis, the Collins approach allows us to analyze a new aspect of the behavior of speculators. In fact, the study of the influence of new information on the process of determining expectations of currency exchange rate devaluations is an innovative and potentially useful step for deep understanding of speculative behavior.

As far as future research is concerned, we propose to carry out a very detailed analysis of the method of selection of new information, and perhaps also to find a quantitative method. Then it will be interesting to analyze the influence of new information during periods of relative exchange rate stability in order to understand why they have so much destabilizing power during periods of uncertainty. On the other hand, it would also be interesting to investigate whether there is a link between the "viscous" expectations that I have examined and the theoretical models (Masson, 1994), in which expectations of devaluation are also a function of the degree of "rigor" of the government (5).

In conclusion, the above analysis can find applications in economic policy. If monetary authorities know in advance that speculators can foresee a realignment approach, they can prevent the destabilizing effects of their actions. In fact, in the context of an exchange system such as the EMS, if speculators anticipate a devaluation, they will ask for foreign currency in order to resell them at a higher rate by making a profit. If fundamental imbalance (that is to say, if high budget deficit), authorities must sell foreign currency to defend the peg, because the pressure on the exchange rate may cause a devaluation. In this case, if speculators ask for additional foreign exchange, they help to increase the pressure on the exchange rate, thus ruining the defenses implemented by the monetary authorities. It should be noted that these defenses could have succeeded in the absence of speculation.

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