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Exchange rate market tensions in a small open economy during the transition to EMU: can Asian countries learn from the Portuguese experience in 1992-1995?*

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Abstract

This paper studies the various Portuguese escudo exchange rate crises during the period 1992-95. Were they the result of the market evaluation of the Portuguese economy fundamentals? Were they the outcome of the expected political changes? Or, to the contrary, can we suggest self-fulfilling crises?

After a general introduction, the paper starts with an estimation of the exchange rate policy credibility a la Svensson and a brief description of the escudo exchange rate crises. The paper then presents different theoretical explanations for speculative attacks, paying special attention to the new formalizations of the behavior of market agents. We conclude with some normative remarks concerning the Portuguese exchange rate crises, and some lessons that Asian countries can learn from the Portuguese experience.

JEL Classification: F3, E5.

Keywords: Exchange rate policy, exchange rate crisis, uncertainty, financial market agents' behavior.

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1. Introduction

Portugal became a member of the European Community (EC) in January 1986. The political option to join the EC did have a significant impact on the policy instruments available, as well as on the performance of the Portuguese economy in the last 15 years. The ultimate goal of the single currency and the overall convergence effort by all European members have forced Portugal to follow a strong nominal convergence effort. The nominal convergence did have an impact on the real performance of the economy, that is, on real growth and on all variables that depend upon economic growth.

Monetary policy was affected: credit ceilings and interest rate controls were slowly abandoned in the late eighties and early, and indirect control via money market was established. As regards the exchange rate, the policy designed in earlier periods to promote economic growth will not be able to be continued, and the price-competitiveness of the Portuguese economy is now more difficult to achieve. The nominal depreciation of the escudo is progressively reduced, and it will no longer compensate the inflation differentials of Portugal vis-à-vis its main competitors.

The performance of the Portuguese economy was impressive during the second half of the eighties, the first years as an EC member. Portugal experienced its longest and more intense growth period since the 1974 revolution, and this allowed a strong real convergence of the economy. Between 1986 and 1990, the average annual real GDP growth rate was 4.5%, a total of 28.2% for the 5-year period. The real growth rate for the European Community as a whole was 18.2% on average, 10 percentage points smaller than that for Portugal.

A significant change took place in the late eighties regarding the ranking of economic policy targets. In the spirit of the Delors plan and under Spanish pressure¹ Portuguese authorities became more concerned with inflation reduction, the more relevant condition for the Portuguese escudo to join the Exchange Rate Mechanism –ERM- of the European Monetary System - EMS. As a result, the crawling-peg policy was abandoned in 1990 and monetary policy became more restrictive. Similarly to other countries in South Europe (Spain and Italy), Portugal was then following a competitive disinflation strategy. The escudo was ‘nominally aligned’ with the Deutch mark. The goal was twofold: on the one hand, to induce a disinflation process via domestic demand contraction; on the other hand, to induce domestic firms to increase their international competitiveness by labor cost reduction. Portugal was therefore following a risky integration strategy insofar as it was depending upon the exchange rate stability (and credibility) and at the expenses of a smaller growth rate (at least in the short run).

¹ The Spanish peseta joined the Exchange Rate Mechanism of the European Monetary System in August 1989.

In spite of the worsening external environment (the early nineties witnessed the German unification, the recession in Europe in a context of world deflation, and the European Monetary System crisis), economic policy in Portugal was continued along the same lines. The Portuguese authorities did not take advantage of the widening of the fluctuation bands decided in August 1993 in the wake of the EMS crisis, not even from a qualitative standpoint.

As a result of the policy orientations, the nominal exchange rate of the escudo stays stable during 1990, and then appreciates between January 1991 and August 1992. Given the inflation differentials between Portugal and the EC average, the end result of the exchange rate policy was a strong real appreciation of the currency. Between 1991 and 1992, the growth rate of the economy slows down, and unemployment reduction slows down as well. A strong recession, with an increasing unemployment rate, takes place between 1992 and 1994. The average growth rate of the Portuguese economy was a mere 1.1% per year between 1991 and 1995. The real convergence achieved during 1985/90 was followed by a real divergence: the GDP growth rate for the 91-95 period (5.4%) represents around 2/3 only of the average growth rate for the EC country members (8.1%).

Looking back (particularly since 1990) at the European integration strategy followed by Portuguese authorities, we can raise some questions regarding its soundness, that is, was it the best convergence strategy, particularly from 1992 onwards? Some doubts arise because the disinflation process witnessed during the period allowed Portugal to join the Monetary Union from the very beginning, but on the other hand the Portuguese economy suffered one of the worst recessions in Europe, both in terms of intensity and duration. The costs of that strategy are partially the result of the difficulty to affirm the credibility of the exchange rate commitment, particularly from October 1992 onwards. In fact, the presence of the escudo in the ERM of the EMS was marked since October 1992 by a recurring lack of credibility and by numerous periods of tension in the foreign exchange market, the end result being 3 exchange rate adjustments and 5 exchange rate crises.

This paper studies the nature of the escudo crises. Were they the result of the market judgement of the fundamentals of the economy and can therefore be interpreted as a government sanction? Were they the result of market agents anticipating policy changes? Or should we postulate the possibility of heterogeneous and sometimes temporally incoherent points of view being homogenized under the influence of some events, and therefore a speculative attack on the run?

The paper develops as follows. We begin with a brief discussion on the evolution of the escudo credibility between 1992 and 1995, and describe the escudo crises. We then review the theoretical explanations for speculative attacks, with a special emphasis on the most recent developments regarding the behavior of financial market agents. We conclude the paper with some remarks about the crises of the escudo in the light of the speculative attack theory, and bring to light some lessons Asian countries may learn from the Portuguese experience.

2. The credibility of the escudo fluctuation band between 1992 and 1995

During this 3-year period we can identify different phases regarding the position of the escudo relative to the other currencies of the EMS, as well as the stability of the currency and the intensity of authorities interventions deemed necessary to defend its central parity.

The escudo market stays stable between April and September of 1992, the currency being one of the strongest of the ERM. During this 6-month period, in spite of the small interest rate differential vis-à-vis the Deutch market, systematic capital inflows pressured an escudo appreciation. The currency strength seemed to prove that it was possible to consistently achieve economic stabilization and strong growth. The pegged nominal exchange rate seemed to work well together with a policy designed to improve growth (low interest rates and a sharp government deficit), for the inflation differentials and the external imbalances seemed not to disturb the external currency stability.

This ‘grace period’ was abruptly over in September 1992, with the EMS crisis. The exchange rate policy did not suffer any relevant modification but, in spite of that, the escudo was realigned three times between September 1992 and March 1995: the first in November 1992, then again in May 1993, and finally in March 1995. Numerous other tension periods occurred between those dates.

Figure 1 shows the expected depreciation of the escudo for a 3-month time horizon and for a 95% confidence interval. Each vertical line defines a 95% confidence interval for the expected (at time t) depreciation rate of the central bilateral DEM-PTE parity three months in advance, in percentage points. The methodology used to draw this figure is in annex 1.

On the one hand, the figure clearly shows that all exchange rate adjustments were anticipated approximately three months in advance; on the other hand it also shows that 3 different phases can be defined regarding the exchange rate policy credibility. The Portuguese monetary authorities benefited from complete credibility of the fluctuation band until August 1992. But from August 1992 up to July 1993, periods of renewed confidence in the wake of each adjustment were followed by periods of lack of confidence. Finally, from July 1993 until March 1995 the credibility of the escudo fluctuation band does not exist, with the exception of one month in early 1994. During the 32-month period between the first EMS crisis (September 1992) and the last escudo adjustment (March 1995) we can identify 5 escudo crises.

3. The escudo crises between 1992 and 1995

The first crisis of the escudo develops during the period September/92-November/92, a period of great EMS instability. This crisis was very intense and reveals what could be named the 'reaction function' of the central bank (Banco de Portugal) when facing speculative attacks against the escudo. It was the end of the golden period of the escudo in the ERM, a period of optimistic expectations. As a result of the floating British pound and Italian lira, and following the attacks against the Danish kroner, the Irish pound, the Spanish peseta, and the French franc, the crisis was finally over when the escudo was devalued by 6%, along with the second peseta devaluation².

The second crisis occurred in February-March/1993. It was very similar to the first one, both in terms of intensity and duration. However, the main differences were the increased difficulty to fight the speculative attack, and the reasons behind the renewed depreciation expectations. This second crisis was marked by the worsening of the fundamentals of the Portuguese economy and is partially the result of the attack against the peseta. By turn, the attack against the Spanish peseta was the result of uncertainty regarding the upcoming elections and government in Spain. There was a speculative surge against the escudo by mid-March, and it was also tied to the public knowledge of a latent conflict between the different Portuguese authorities regarding the adequate conduct of the monetary policy.

The third crisis occurred in July 1993. It affects all currencies in the EMS. It did start with an attack against the currencies in the narrow fluctuation band, and is later on generalized to all currencies (escudo included). However, the third crisis is different from the first two because a favorable scenario never develops once the crisis is over, and the credibility of the escudo fluctuation band never fully resumes after the attack. The widening of the fluctuation band (15% on each side of the central parity) was set up in motion in August 1993. The strategy followed by Portuguese authorities was very similar to the one followed by Spain at first, and basically the target was to keep the escudo exchange rate within the previous 6% band. As a result of this strategy, the authorities were required to keep high short-run interest rates as a means to prevent hostile speculative positions.

The fourth and longest crisis hits the escudo between February and July 1994. This time the crisis is purely domestic, and the speculative attack (as well as the measures against it) was slowly in motion. This escudo crisis happens at a time when the currencies in the EMS were showing clear signs to be back to normal stability, the Spanish peseta included. The crisis was connected with the existing conflict between the government and the central bank regarding the interest rate policy. The attack gets under way when the Portuguese prime minister, Cavaco Silva, talking to the press in

² The Spanish peseta was devalued 5% in September 1992 and 6% more in November.

early March suggests that the reference interest rates should quickly be reduced, and that was a strong criticism of the central bank behavior in pursue of the foreign exchange target.

Finally, the fifth crisis precedes the last escudo realignment in March 1995. The crisis affects the lira, franc, and peseta, and follows the depreciation of the American dollar that took off in December 1994. The French franc is not devalued, but in spite of the improving fundamentals of the Portuguese economy, authorities are forced to devalue the escudo in the footsteps of the Spanish authorities.

4. Three theoretical models of speculative attacks³

The speculative attack theory gives us three explanations for foreign exchange crises. Firstly, speculative attacks against one currency can be the end result of incompatibility between domestic policies and the foreign exchange rule. They can also happen if that incompatibility does not actually exist but is anticipated as highly likely to occur. Finally, they can be self-fulfilling in the sense that they drive some changes in the domestic macroeconomic policy, and the policy becomes inconsistent with the existing foreign exchange rule. These three interpretations of a speculative attack are the basis for three types of models. They were developed in the footsteps of Krugman's balance of payments crisis model. Although they have a common ground, the three models are different in the way they identify the factors leading to the formation of currency depreciation expectations that trigger off the attack.

i) The speculative attack as the end result of incompatibility between domestic policies and the foreign exchange rule

Krugman (1979), and Flood and Garber (1984) set up the basis for the balance of payments crisis model. The basic idea of the model is the following. In a fixed exchange rate regime if a country's international competitiveness deteriorates (if we have expansionary monetary policy, for example) the amount of foreign reserves is reduced up to a point when the foreign exchange regime change is inevitable. The authorities are therefore forced to devalue the currency or to abandon the fixed regime. If the change only takes place when foreign reserves hit the zero level, then the nominal depreciation is instantaneous, for it would be necessary a brutal improvement in competitiveness to stop the reserve leakage. The sudden depreciation brings about foreign exchange losses for non-resident holders of assets denominated in the domestic currency. In order to avoid this capital loss, non-resident agents carry through an early speculative attack as soon as they realize that the nominal

³ For a formal presentation of the models, see Abreu (1997) or K. Blackburn and Sola (1993).

depreciation is inevitable. Therefore, they sell their assets denominated in domestic currency even before foreign assets reach the zero level, causing an even smaller level of reserves and forcing the option for a flexible exchange rate system.

Krugman's model has been developed in different directions⁴, but one idea is common to all the developments: the speculative attack is explained by the macroeconomic behavior of the country. In particular, those policies liable for systematic balance of payment deficits, which are not consistent with the nominal stability of the exchange rate. Speculative attacks are thus connected with the exchange rate determinants. A country suffers one balance of payments crisis whenever its international competitiveness progressively deteriorates, and this lack of competitiveness is the result of unbearable monetary and budget policies under a fixed exchange regime.

ii) Speculative attacks as the result of anticipated policy changes

The credibility of a foreign exchange regime (or of a fluctuation band) does not depend solely on the agents' evaluation of the compatibility between policies and the foreign exchange regime. It is also prospective in the sense that agents' judgement is also on the (expected) future policy prospects. Therefore, the credibility of the fluctuation band depends upon the market's judgement and evaluation of the monetary authorities announcements regarding the future pursue of policies that are compatible with the currency parity. On the one hand, this judgement is a function of the monetary authorities' reputation and efforts to keep the currency parity; on the other hand, it is a function of the agents' evaluation of the fundamentals of the economy and the sustainability of the policy⁵. In fact, the macroeconomic policy necessary to keep the parity may bring about domestic costs that market agents consider excessive (mainly in terms of employment and economic growth). It is therefore possible to anticipate a policy reversion, against the formal policy announcements, if the announced policy (necessary to keep the exchange rate regime) is judged responsible for the deterioration of the fundamentals of the economy, or at least if it does not allow an improvement of the fundamentals.

Wyplosz and Eichengreen (1993) stress that a speculative attack may occur even when the followed fiscal and monetary policies are consistent with the foreign exchange regime, if there are strong expectations in favor of a policy reversal because of the costs of that policy. The speculative attack would thus be an anticipation of

⁴ Willman (1988) considers that external imbalances are the result of an expansionary fiscal policy. Permanent public deficits reinforce depreciation expectations, and anticipate the attack. Calvo (1987) uses a wage equation where wage levels depend upon expected prices, i.e., expectations regarding the exchange rate. Anticipation of a speculative attack raises wages and therefore the crisis is premature and more intense. Grilli (1986) and Classens (1991) introduce the question of agent uncertainty regarding monetary creation, and the timing of the attack becomes a random variable.

⁵ As Drazen and Masson (1994) put it, the credibility of the policy announcement is beyond the authorities reputation. An anti-inflationary policy based on nominal exchange rate anchorage may result in higher unemployment, and that weakens the credibility of the political compromise in the future.

what would happen later: the policy change. This is an explanation based on credibility, in the words of Artus (1995). The loss of credibility is explained by the high costs of the macroeconomic policy, not the foreign exchange commitment.

iii) The self-fulfilling speculative attacks

According to either one of the previous two approaches, the likelihood of a speculative attack is very slim when a country is 'irreprehensible'. A speculative attack only exists when macroeconomic policies are judged as 'excessively lazy' or when they imply substantial economic costs, meaning that the exchange rate commitment is not suitable for the economy. In both cases the speculative attack sanctions a 'bad policy'.

Obstfeld (1986) suggests a third explanation: the speculative attack is independent of the judgement and evaluation of the past, present and anticipated policy. The attack itself validates, *a posteriori*, the pertinence of speculative foreign exchange positions insofar as once the attack is under way the authorities are forced to abandon the previous exchange rate commitment. The reasons for a self-fulfilling speculative attack are therefore very different from those in the first two models. The exchange rate is attacked not because its level is considered (or anticipated) to be not suitable with the fundamentals of the economy; to the contrary, in the event of a speculative attack (uncertain event), market agents anticipate a policy reversal, and the reversal of the policy makes the attack a lucrative one. The idea here is that there are multiple equilibria that may or may not bring about a speculative attack, but in the event that they actually happen they validate themselves because they force a policy change.

The question then becomes: why do authorities react to speculative attacks with a policy reversal? Obstfeld claims that they react with a policy reversal because central banks cannot raise international funds when the level of its reserves is very low (and that is a result of the attack itself). Gros (1992) hints that authorities are averse to an interest rate increase brought about by a non-accommodating policy, and that market agents anticipate this aversion. Finally, Artus and Bourguinat (1994) suggest that if the currency is devalued in the wake of a speculative attack, the credibility of the exchange rate commitment stays under fire and authorities lack the incentive to defend the fixed exchange rate regime because restrictive policies do not any longer have a positive effect.

5. Modern financial market theories: another explanation for foreign exchange crises.

The self-fulfilling theory of speculative attacks does not explain how and when expectations are coordinated in a particular combination of self-validated expectations. Recent theories about the behavior of financial market agents and price dynamics offer new grounds for meditation. In the aftermath of the stock exchange crises of the eighties, particularly the October 1997 crash, some people studied the causes of price fluctuations in financial markets, and the profound divergences between market and equilibrium prices. Their research raised two new questions. On the one hand, the existence of mimetic behavior is now studied as a rational answer under uncertainty; on the other hand, they also considered the heterogeneity and diversity of market agents' behavior, as a result of different rationality and/or asymmetric information. Therefore, these new approaches stress that prices in financial markets are the result of a very complex dynamic, able to be destabilizing under specific conditions. The approach was later extended to the interpretation of crises in the foreign exchange market under fixed rates. The reason is twofold. Firstly, the idea that the endogenous dynamics of the foreign exchange markets may lead to multiple equilibria and therefore self-fulfilling attacks. Secondly, they help us to understand how uncertainty about future economic policy may lead to expectation instability or even to polarization over a pessimistic scenario⁶ (even when monetary authorities pursue an intransigent policy to protect the parity of the currency).

5.1. Mimetic: the rational answer under uncertainty

Orléan (1989a, 1992 and 1994) gives one of the most fruitful contributions for the comprehension of phenomenon that rule financial markets. Uncertainty is an essential characteristic of financial markets, and represents the existence of an important doubt regarding the evolution of markets. Orléan shows that, in this context, market agents' rational answer can only be a mimetic behavior, and this behavior is the basis for the high price instability that characterizes these markets.

Traditionally, economic theory uses stationary random variables to express individual rationality under uncertainty, that is, variables with an invariant or slowly changing probability function. Risk is therefore based on stable and unambiguous 'working laws' of the economy.

Orléan defines uncertainty in a very different way. Uncertainty is the "outburst of new happenings, incapable of being reduced to old data, such as technological change" (Orléan, 1989b). 'New' qualifies those events for which does not exist any base, inside the existing body of knowledge, to evaluate its plausibility. It is impossible to

⁶ Regarding the evolution of the currency's external value.

infer it from the state of knowledge at the moment. What matters to us is the following: if we perceive uncertainty in such a way, does it change the usual concept of the agents' behavior? As a matter of fact, the answer is yes. Under uncertainty, market agents' behavior in financial markets does not any longer correspond to the archetype of a financial agent with a profound knowledge of the economic laws and a rational behavior⁷, for the future events escape her/his optimizing capacity.

Faced with uncertainty, a market agent is more interested in the way other agents interpret information than with it being true or false. Pertinent information can no longer be objectively defined as that information which is able to truly represent the fundamentals, but it psychologically counts instead on the grounds that it allows one to forecast the beliefs of the majority of market agents. Since the other agents act in a similar fashion, to anticipate others' opinion leads to anticipating what others think the average belief is going to be. Therefore, assuming an identical rationality for the different agents, it is possible to prove that the sole admissible anticipation is the infinite-level anticipation. Financial markets are thus a self-referenced system, where the "average opinion is simultaneously the result of individual anticipations and the purpose on which agents base the determination of his/hers anticipations"⁸. The market price is the limit of this process of increasing crossed anticipations. Orléan names it as "specularity".

How is it that a risk-averse rational agent, aware of her/his limited information, is able to anticipate the way by which other agents interpret her/his own anticipations regarding collective anticipations? Under uncertainty, each agent possesses two sources of information. One is market exogenous, usually imperfect, and reveals his/her own interpretation of the state of the economy. The other is purely endogenous and is connected to her/his own awareness that he/she is acting in a market where at each moment the observed price only represents the average opinion of market agents. The rational agent uses both types of information. She/he evaluates the probability of moving from one to the other opinion, according to the confidence he/she gives his/hers own opinion vis-à-vis the group opinion. The stronger uncertainty is (i.e., the more incomplete the information on the price fundamentals) the more the investor is rationally led to imitate the others, to identify herself/himself with the market trend. The mimetic (or imitative) anticipation, defined as "agent's *i* anticipation when he/she considers his/hers other agent's or group of agents' anticipation", is the rational answer of agents under financial market uncertainty. Mimetic behavior is therefore a form of specularity frequently witnessed in uncertain financial markets. The effect of mimetic specularity on the working of financial markets leads to a very particular price formation process. The more striking fact is that the actual equilibrium cannot be forecasted *a priori* for multiple equilibria is possible. Specularity can therefore lead to price drifting, i.e., cases where actual prices are completely out of line with

⁷ The knowledge and behavior are the result of his/her capacity to select and digest pertinent information.

⁸ Cf. Orléan (1989b) p.257.

objective data. Specularity allows one to understand speculative bubbles as well as price volatility relatively to the volatility of the fundamentals.

According to Cartapanis (1994), this type of behavior has a good chance to get generalized when the intrinsic value of the asset is vague and uncertain, that is, if doubt exists regarding the pertinence of the fundamental values. If that is the case, any rumor regarding the existence of a singular event (able to affect the price of an asset) may easily drive market agent anticipations towards a pessimistic scenario. The market is then exposed to fluctuations even when the evolution of the economy does not justify the reversal.

Summing up, recent theoretical developments regarding financial market agents' behavior offer some new elements for the comprehension of speculative attacks against one currency, and they escape the macroeconomic rationality (i.e., they are beyond any effort to evaluate its fundamental value). Uncertainty is an intrinsic characteristic of financial markets. Therefore, agents' beliefs may concentrate on the value of an asset (a certain exchange rate level) that does not match its 'fundamental' equilibrium value, or even tend to divert from its equilibrium value in a self-fulfilling way (the case of speculative bubbles)⁹.

The own dynamic of financial markets leads to the same results when we account for heterogeneous agents. Speculation may be destabilizing even when agents have a rational behavior insofar as the microeconomic rationality of behavior may lead to macroeconomic irrationality of speculation.

6. Conclusion: The escudo crises in the light of the theoretical explanations for speculative attacks and the instability of the foreign exchange market.

1. The deterioration of the Portuguese economy fundamentals creates an increasingly suspicious environment regarding the currency but does not explain all escudo crises.

The past evolution of macroeconomic variables traditionally considered more relevant to assess the viability of a fixed exchange rate regime (such as the inflation rate, the growth rate of the money stock, the budget deficit, and the current account balance) cannot explain all escudo crises. As a matter of fact, since 1993 the worsening of the external accounts supplied solid reasons to question the robustness of the escudo parity. However, between April/1992 and March/1995, different moments of strong tension on the escudo-mark parity show that anticipations of escudo devaluation are far more volatile than those variables and are therefore autonomous. However, one

⁹ And those processes may not find any reference on the evolution of the economic fundamentals.

cannot conclude that the speculative attacks did lack economic foundation. The analysis developed in this paper suggests that if the economic ‘fundamentals’ of the escudo are only partly (or not at all) based on past performance, anticipated policies and anticipated policy changes play a prominent role in the arousal of speculative attacks.

2. Market opinion about the lastingness of the policy appears to be one critical determinant of the anticipation of the escudo depreciation.

The analysis of the escudo crises leads one to conclude that exchange rate anticipations are formulated based on hypothesis about the likely evolution of the domestic economic policy. Various aspects seem to have been accounted for whenever agents challenged the likelihood of exchange rate stability. On the one hand, considerations related to the worsening of the domestic environment (the intensity of the recession and the slow recovery) were interpreted as costs of a strong escudo. On the other hand, the market interpretation that the Portuguese and Spanish economies were strongly tied up.

2.1. An exchange rate system judged inconsistent with the fundamental needs of the economy

The different tension episodes on the foreign exchange market seem to follow the rhythm of disclosure of statistical information (both historical and forecasted figures) on unemployment and the GDP growth rates. They do not seem to follow the publication of information on variables that the balance of payments crisis model considers the more relevant. The hypothesis that the worsening fundamentals of the Portuguese economy would in fact lead to a rejection of the exchange rate stability target seems to be the determinant factor in the polarization of anticipations regarding a pessimistic scenario. This was particularly evident during the February-May/1993 and the July/1993 crises.

After July 1993, strongly diminishing domestic interest rates were considered a necessary and fundamental condition to warrant economic recovery, and this condition seemed to be, from the market perspective, inconsistent with the stability of the escudo parity.

2.2. The market considers that the Portuguese and Spanish economies are strongly tied up.

A second aspect seems to have strengthened anticipations regarding policy changes: the idea that the escudo exchange rate was strongly connected to the Spanish peseta exchange rate. On the one hand, Spain became a more relevant market for Portuguese exports; on the other hand, Spanish products became strongest competitors with Portuguese products in international markets. As a result, market agents felt that Portuguese monetary authorities could not remain indifferent in the case of peseta realignment. To not follow the peseta would be a factor allowing the deterioration of Portugal’s international competitiveness, and would make recovery even more

difficult. If the domestic fundamentals of the economy were not good, and with signs that Spain was preparing less restrictive monetary and foreign exchange policies, then that would create anticipations of a changing exchange rate policy in Portugal. The public debate, in Portugal, in the wake of the peseta realignment in September/92 (the only one that was not followed by an escudo realignment) provides a good example.

3. But the escudo crises lead us to the self-fulfilling theory as well...

The theory of self-fulfilling speculative attacks gives some additional insights in the Portuguese case. And Spain is, once again, important. There is the idea that a peseta-zone exists inside the mark-zone. In other words, the past experience of simultaneous peseta and escudo realignments leads market agents to assume that whenever the market witnesses a peseta devaluation an escudo devaluation will necessarily follow. Thus, anticipations of a peseta realignment are a strong incentive for a speculative attack against the escudo. Market agents anticipate that the attack is going to be very profitable when there is a strong probability of peseta devaluation, regardless of the announced intentions by Portuguese authorities. This seems to be the main explanation for the speculative attacks against the escudo in July/93 and March/95.

4. ... and stress the relevance of the highly destabilizing political conflict among Portuguese authorities.

The ranking heterogeneity of monetary and foreign exchange policy targets among the authorities in charge of the conduct of those policies is one of the most interesting aspects of the analysis of the Portuguese escudo crises. It is eventually the more original fact in the EMS experience, and this public conflict did have highly destabilizing consequences on expectations. The public announcement, by monetary authorities, of their determination to keep a certain exchange rate policy is not enough to lead to expectation stability, but the unity of the official discourse is certainly a necessary condition.

The Portuguese case clearly shows the destabilizing danger caused by the indefinición of future policy targets. The political conflict regarding interest rates reached the media and became one additional source of anticipation instability for it did lead to increased uncertainty. The observed conflict led market agents to polarize their opinions onto two opposing scenarios, that is, mimetic behavior. In this context of high uncertainty regarding future policy orientations, polarized opinions were created regardless of the actual evolution of the fundamental macroeconomic variables (or even the evaluation of that evolution).

Two clear examples are the finance minister speech (Braga de Macedo) in March 4th, 1993, and the prime minister (Cavaco Silva) speech one year later. These two events marked the strongest speculative attacks against the escudo and are without any doubt the determinant element of the tensions in the foreign exchange market during 1994¹⁰.

¹⁰ The other currencies in the ERM, peseta included, found their stability during the year.

5. The early liberalization of capital movements has reduced the efficiency of foreign exchange market interventions.

The high sums invested in the foreign exchange market in the defense of the escudo were not a critical factor insofar as the non-resident positions were not legally limited by capital controls. The existence of capital controls was very important in September/92 to defend the escudo. However, Portuguese monetary authorities anticipated the timing of capital control dismantlement. The end result was that from January 1993 onwards central bank interventions in the defense of the escudo parity became less efficient and more costly.

6. In the lack of efficiency of foreign market interventions, the interest rate policy is responsible for the defense of the escudo parity. However, interest rates are difficult to manage; their management could eventually become disastrous whenever used to sustain an excessively rigid nominal exchange rate anchorage.

The two basic instruments to fight a speculative attack in the foreign exchange market are central bank interventions and the interest rate policy. In fact, once devaluation expectations are revealed, both instruments are able to discourage speculation because of the high costs involved with speculative activities.

But the interest rate instrument must be used with caution. On the one hand, the interest rate hike must be sufficiently strong so that it is interpreted as a clear sign of the authorities' determination to fight speculation. On the other hand, the size and duration of the interest rate hike must be sufficiently limited. During the February-July/94 crises domestic interest rates increased as a result of the higher short-run interest rates. In fact, it is necessary that the interest rate hike does not lead to higher domestic interest rates and these higher interest rates bring with them the risk of renewed depreciation expectation because of the unsustainability of the monetary policy. However, authorities can not speed up the process of bringing the rates back to their pre-crisis level¹¹ because market agents may interpret that sudden diminishing rates as a sign of a future policy changes regarding the exchange rate regime. Portuguese monetary authorities decision to not use the entire escudo fluctuation band (and that would have allowed a more suave monetary restriction) was finally translated into a crescent difficulty to preserve the nominal anchorage. Intending to preserve a very rigid nominal restriction, the authorities were responsible for an excessive real appreciation of the escudo. This appreciation increased the adjustment costs and, in the limit, has reinforced the anticipations of escudo depreciation.

7. The recent Asian financial crisis in the light of the theoretical explanations of speculative attacks: what can we learn from the Portuguese experience.

Both the escudo 1992-95 crises and the recent Asian currency crises seem to prove that the different theoretical explanations for speculative attacks are nothing but

¹¹ And that was the case in the aftermath of the May/93 crisis.

complementary (and not concurrent) explanations for the interpretation of those crises. On the one hand, fundamental disequilibria seem to be determinant at the birth of the crisis (real currency appreciation, in particular) but, on the other hand, negative expectation perpetuation and subsequent currency attacks seem to support Wyplosz' arguments as well as the self-fulfilling attack theory. The analysis of both the Portuguese and the Asian experiences also lead us to draw some notes on the adequate foreign exchange regime and the monetary authorities interventions in response to a speculative attack.

7.1. An adequate foreign exchange regime

The Portuguese and the Asian experiences seem to prove that the viability of a foreign exchange regime depends upon its capacity to assure both a certain predictability of the authorities' behavior and the efficiency of real adjustments. The predictability of the authorities' behavior is fundamental to preserve anticipation's stability. The efficiency of the adjustment mechanisms allows the absorption of real economic divergences. The need to compatibilize these two 'qualities' in just one foreign exchange regime leads us to conclude that intermediate regimes such as the "managed float" and the "flexible peg" are the more adequate for small economies, increasingly open to foreign trade and free capital movements.

This intermediate regime should adopt two basic principles:

- i) the reference parity should be defined relative to a representative (in terms of the country's foreign trade structure and capital flows) currency basket. The main international currencies (US dollar, Japanese yen and Euro) should be part of the basket regardless of the above mentioned structures. This redefinition of the nominal anchorage basket will allow the reduction of vulnerability *vis a vis* the international fluctuations amongst the big international currencies¹²;
- ii) the reference parity should be regularly redefined in order to preserve its medium-term sustainability, should be progressively (crawling-peg) and preferably adjusted at a pre-announced rate (in order to assert a certain predictability).

7.2. Authorities intervention in response to a speculative attack

Uncertainty increases in the wake of a speculative attack: monetary policy loses its reference, foreign exchange risk as well as foreign exchange rate volatility strongly increase, and nobody knows the pace of the stabilization movement. An adequate and timely intervention is fundamental in order to prevent a generalized economic recession in this context of increased uncertainty. The first question authorities must

¹² The strong US dollar/yen fluctuation (when the vast majority of Asian currencies was anchored to the US dollar) was a major source of instability. After 1995, the yen depreciation (emphasizing the real appreciation of Asian currencies *vis a vis* the Japanese yen) concurred for a rapid deterioration of the price-competitiveness of these Asian economies in a context of growing economy vulnerability (as a result of increased openness – tariff reduction and the removal of quantitative barriers) [cf. Kwan 1998, Rasiah 1998].

face is that of the sustainability of the attacked nominal anchorage. In the case of a real sustainability problem (and certain real shocks could have such a nature that they justify this adjustment) the solution is to go forth with the necessary adjustment. If such a real sustainability problem does not exist, and once the pertinence of the nominal anchorage is confirmed, two fundamental principles should guide the intervention of the authorities:

- *A flexible, balanced and progressive answer to the downward pressures.*

The 1992 EMS crises did show, and the Asian crises confirms it, that rigid and automatic policies to fight speculation (defending the nominal exchange goal at all costs, using all foreign reserves) do not have a permanent positive result. The voluminous central bank interventions in order to preserve the parity of the currency are not very useful, particularly when the speculative positions held by non-residents are not limited by the existence of capital controls. Thailand provides a good example.

The intervention of authorities must be flexible and progressively developed. A good equilibrium must be found between market interventions (avoiding reserve depletion) and interest rate policy (avoiding the risk of contagion of the interest rate term structure due to a lengthy increase in short-term interest rates). If the pessimistic scenario is prominent, a good equilibrium could be obtained with only a slight interest rate increase (incorporating a stable and reasonable risk premium, designed to encourage the demand for the national currency), whilst the market exchange rate stays undervalued *vis a vis* the desired parity.

- *A transparent intervention policy*

The escudo crises, as noted above, clearly show the negative effect caused by the nonexistence of a clear definition of the political goals set forth by monetary authorities. But the recent Asian experience brings to light a different aspect of the same problem: the authorities behavior contradicts the policy announcements. On July 2, 1998, after months of asserting that it would do no such thing, the government of Thailand abandoned its efforts to maintain a fixed exchange rate for the bath. Within a few days, the currency depreciated more than 20 percent. The problem here is the lack of efficiency of future interventions as a result of the loss of credibility of policy orientation announcements.

Annex: The parametric credibility tests.

We use the methodology suggested by Svensson (1991b) and Rose and Svensson (1991) to estimate the anticipated rate of devaluation of the escudo. Assuming that the anticipated total depreciation rate of a currency is equal to the interest rate differential¹³, the anticipated devaluation rate in a fluctuation band regime equals the difference between the interest rate differential and the currency's depreciation inside the band. This is a parametric method in the sense that the anticipated depreciation rate inside the band is estimated rather than computed from all the length of the fluctuation band (as in the simple credibility tests – Svensson 1991a).

The anticipated rate of devaluation can therefore be defined as

$$(a1) \quad g_t^m = \Delta_t^m - \text{Et}[\Delta x_{t+m} | \text{no realignment}]/m \cdot dt. \quad \text{where}$$

g_t^m = anticipated (at period t) devaluation rate of the central parity m periods in advance;

$\Delta_t^m = i_t^m - i_t^{*m}$ = interest rate differential (domestic rate – foreign rate) on bonds with maturity m;

$\text{Et}[\Delta x_{t+m} | \text{no realignment}]/m \cdot dt$ = anticipated (at period t) depreciation rate inside the band, m periods in advance, conditional to the non-existence of a realignment;

$x_t = s_t - c_t$ = difference between the log of the market exchange rate and the log of the bilateral central parity;

$$\Delta x_{t+m} = x_{t+m} - x_t ;$$

$\text{Et}[\Delta x_{t+m} | \text{no realignment}]$ = expected value (in period t) of the change in x between periods t and (t+m) conditional to the inexistence of a realignment.

The anticipated devaluation rate of the escudo vis-à-vis the mark in a 3-month time horizon was computed as the expected escudo depreciation inside the band subtracted from the interest rate differential between Portugal and Germany. The expected escudo depreciation inside the band was estimated by OLS using the following equation:

$$(a2) \quad (x_{t+64} - x_t)/(254/64) = \sum_j \beta_{0j} d_j + \beta_1 x_t + \beta_2 \Delta_{pte}^m + \beta_3 \Delta_{esp}^m + u_{t+64} \quad \text{with}$$

$d_j = j$ dummy variables, identifying each time-period between two realignments. We therefore allow (and are able to test) for different anticipated depreciation rates

¹³ That is, accepting the hypothesis of uncovered interest rate parity.

between realignments. If a coefficient is positive and significant then it means that the escudo was on average, a strong currency inside the band during the period between the two realignments.

$x_t = s_t - c_t$, is the exchange rate inside the band, and is frequently used as the solo explanatory variable when explaining Δx_{t+m} . The coefficient of x_t , if negative and statistically significant, shows the existence of a force pulling the exchange rate towards the central parity, i.e., the deviation of the exchange rate has a stabilizing effect.

Δ_{pte}^m and Δ_{esp}^m represent the difference between the euro interest rates in Portugal and Germany (Δ_{pte}^m) and in Spain and Germany (Δ_{esp}^m). The use of Δ_{esp}^m allows one to test the influence of the stability of the peseta market on the escudo market.

We use daily observations on the DEM-PTE exchange rate and daily interest rates in Portugal, Germany and Spain, for the period April 14th, 1992 – March 7th, 1995. The interest rates are those for eurodeposits, daily bid rates in the London market, for 3-month deposits.

Our main goal is to compute the anticipated depreciation rate, conditional to the inexistence of realignments. Therefore, we exclude observations that precede any realignment within 3 months, and that amounts to 64 observations. Equation (a2) was estimated by OLS, and results are in table 1. The estimated anticipated devaluation rate of the escudo (vis-à-vis the mark) computed using (a1) for a 95% confidence interval is in figure 1.

Anticipated depreciation rate DEM-PTE, 3-months in advance, inside the band						
	14/04/92 to 22/11/92	23/11/92 to 12/05/93	12/05/93 to 05/03/95	β_1	β_2	β_3
Est. Coef.	1.916	-2.633	12.814	-3.974	-0.286	0.904
t-ratio	(0.29)	(-0.28)	(2.097)	(-15.54)	(-0.58)	(0.70)
R2	0.86					
Standard deviation	0.041					
N° observations	547					

OLS estimation of equation (a2), using LIMDEP. T-ratios are computed using Newey-West standard deviations.
The Banco de Portugal gently granted original data on daily exchange and interest rates.

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