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## *European Monetary Reform: Progress and Prospects*

IN THE PAST TWO YEARS, a new plan for monetary union in Europe has gained widespread popularity. The plan has also invigorated the initiative to build a single currency area among European Community (EC) countries—an initiative that has been a recurrent feature of the debate on European monetary policy throughout the postwar period. Indeed, many observers now believe that the achievement of a monetary union is highly likely: C. Fred Bergsten states that Western Europe is “*almost certain* [emphasis added] to go beyond ‘completion of the internal market’ to an Economic and Monetary Union, or EMU.”<sup>1</sup>

The policy problems related to monetary reform are determined by the approach taken to reform. In the late 1960s, two alternative strategies were much debated; surprisingly, they have received little attention recently. The first program, known as the gradualist strategy (the supporters of which have been labeled “economists”), relies on progressive removal of trade barriers, convergence of inflation rates, progressive stability of exchange rates, and parallel modification of monetary policies and institutions. The second strategy involves a sudden currency reform (its supporters have been labeled “monetarists”). This strategy amounts to either the irrevocable locking of exchange rates, with the elimination of target zones, or the replacement of national currencies with a single currency. Both possibilities would require a common central bank to manage the system.

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1. Bergsten (1990, p. 97).

The current plan for monetary union, the so-called Delors plan, largely reflects the view of the “economists.”<sup>2</sup> Significantly, the Delors plan does not set deadlines for monetary union, nor does it demand that certain criteria be met in order to move from one stage to the next in the institutional reform. As a result, and despite an early show of support, it is not clear how much commitment exists for this plan, even among the continental governments that are members of the European Monetary System (EMS).

How might the current plan for monetary union become successful? In the absence of new institutional developments, the convergence of inflationary expectations and the stability of exchange rates are necessary conditions for the success of the gradualist strategy. This paper discusses the problem of achieving and sustaining these twin objectives and, more broadly, the Delors plan’s chance for success. I consider the historical and institutional background for European monetary union: the monetary arrangements of the postwar period, the early attempts at achieving monetary cohesion, and the characteristics of the Delors plan. I also address the extent to which inflationary expectations have converged among France, Germany, and Italy, and what this implies for monetary reform.

Western European countries have been talking about monetary union for three decades now. An understanding of the historical developments surrounding monetary union reveals much about the nature and potential success of the current initiative. I deal with these issues in the first section of the paper. In the second section, I focus on the experiences of the three largest countries involved in the debate on monetary union—France, Germany, and Italy. All three have been members of the EMS since its inception. This section explores the question of convergence of inflationary and exchange rate expectations, which can be gauged from the behavior of both wages and, especially, interest rates. In the third section, I use alternative models to examine the empirical evidence presented for France, Germany, and Italy. The main questions are how much does the pegging of exchange rates contribute to the convergence of inflation rates and interest rates, and how credible is a plan for monetary union that hinges on the pegging? One noticeable result of this

2. The study by the Committee for the Study of Economic and Monetary Union (1989) is commonly called the Delors plan or Delors report.

section—a result that has potentially important implications for the theory of exchange rate regimes and optimum currency areas—is that pronouncing exchange rates to be fixed may not eliminate distortions in real interest rates and real wages. The fourth section discusses the current prospects for monetary union in light of the evidence presented, and is followed by some general conclusions.

Throughout the paper, I assume that the goal of monetary union is to converge to the low level of inflation in Germany. This attitude is widely reflected in all official documents and has arguably justified the cohesion of the EMS.

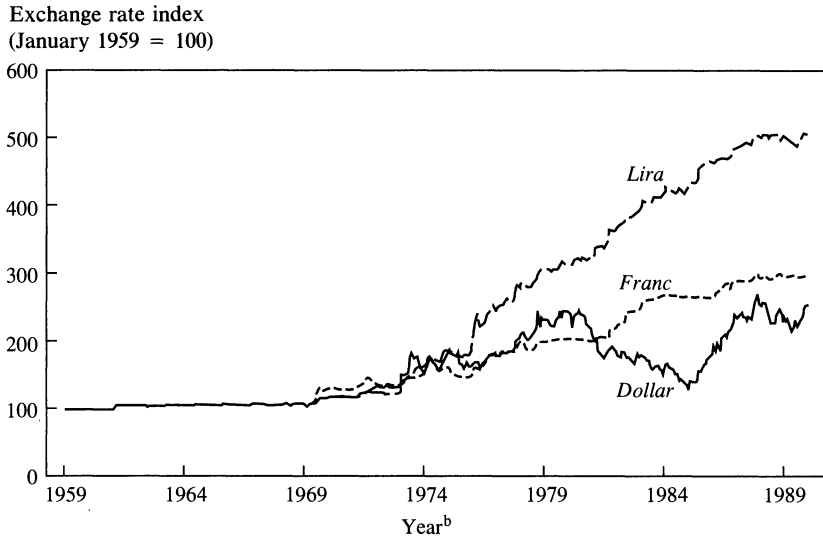
### **Renewed Momentum toward Monetary Union**

References to economic and monetary union appear as early as the Treaty of Rome in 1957. The accelerating pace of negotiations seen in the past 18 months should be set against the background of previous attempts at achieving monetary cohesion. Such an exercise should also help assess the prospects of the current efforts in light of earlier failures. Exchange rate developments of the past 30 years are depicted in figure 1. The figure shows the real bilateral exchange rates of one deutsche mark relative to the U.S. dollar, the French franc, and the Italian lira, and summarizes the monetary arrangements of the three European countries in the past 30 years.

The Treaty of Rome advocated, together with the creation of a common market for goods, the removal of exchange controls in tandem with the liberalization of goods markets. The treaty also recommended that exchange rate changes by member countries be elevated to the status of “matters of common interest.” These statements of principle, however, proved ineffective in practice. The exchange rate realignments of the deutsche mark in March 1961, the French franc in August 1969, and the deutsche mark again in October 1969 were unilateral decisions.<sup>3</sup> Except in these cases, the stability of intra-European exchange rates before 1971 was assured by pegging each currency to the dollar.

3. Sterling was devalued in November 1967, but at the time the United Kingdom was not a member of the European Community.

**Figure 1. The Italian Lira, French Franc, and U.S. Dollar Relative to the Deutsche Mark, 1959–89<sup>a</sup>**



Source: IMF, *International Financial Statistics*.

a. The figure shows an exchange rate index, with January 1959 = 100. Exchange rates were calculated as the unit of foreign currency per deutsche mark.

b. Ticks represent January of the year indicated.

### *The First Attempt*

The response of the European Community to the deutsche mark realignment, and to the unfolding of the crisis in the Bretton Woods regime, was a solemn statement by the heads of state at the European Summit held at The Hague in December 1969. The statement expressed the desire to see the Community develop into an economic and monetary union through the implementation of a phased plan. Some views expressed at the time have been echoed in the current debate—with the French advocating a sudden locking of parities and the elimination of fluctuation bands and the Germans preferring a gradual approach, in which the convergence of macroeconomic structure and performance is a precondition for monetary union.<sup>4</sup>

The summit appointed a committee, headed by Pierre Werner, prime

4. At that time, the “monetarist” and “economist” labels were created to characterize these two views respectively. See Tsoukalis (1977).

minister and finance minister of Luxembourg, to report on practical steps for achieving economic and monetary union. The resulting Werner report argued that monetary union must occur in three stages.<sup>5</sup> During the first two stages, coordination of economic policy had to be strengthened. The process of coordination would combine prior consultation with follow-up monitoring. The second stage was further characterized by the creation of a "European Fund for Monetary Cooperation," which would "progressively manage Community reserves" and would manage intra-European balance-of-payments financing. This fund would be integrated, in the third stage, into a system of Community central banks. Parity readjustments were ruled out for the second stage. In particular, the Werner committee concluded that:

The ultimate objective . . . appears to be one that can be attained within the present decade, provided that it continues to enjoy the political support of the governments. . . . The adoption of a single currency could be the final stage of this union, ensuring the irreversibility of the process.<sup>6</sup>

The Werner report was the outcome of heated debates that saw the French government, with its strong aversion to any institutional changes that would limit national sovereignty, pitted against the five remaining countries, which favored some transfer of power to a European institution and changes in the Treaty of Rome. In the end, the nations agreed to leave many details about intermediate stages unspecified and focus on the first stage and the final objective, which was safely in the distant future.

On March 22, 1971, the EC Council of Ministers signed a resolution adopting the Werner report and laying down a timetable for the reforms needed to enhance the integration of goods and financial markets.<sup>7</sup> On the policy side, the resolution advocated more power for the Monetary

5. The Werner report, officially entitled "Resolution of the Council and of the Representatives of the Governments of the Member States of March 1971," is recorded in Monetary Committee of the European Communities (1986).

6. See introduction to Werner report in Monetary Committee of the European Communities (1986).

7. The first stage would start in January 1971 and last no more than three years. From January 1, 1974, VAT and excise taxes as well as taxes on dividends and interest would be harmonized. Also, the EC would work to harmonize "those kinds of tax which are likely to have a direct influence on capital movements within the Community." Efforts to harmonize corporate taxes would also take place.

The EC also planned the progressive liberalization of capital markets and the improved coordination of financial regulatory activities.

Committee and the Committee of Central Bank Governors. It also recommended a narrowing of fluctuation bands for exchange rates.

Two months later foreign exchange markets provided the conditions for the effective meltdown of the Werner plan. Germany called an emergency meeting of EC finance ministers to propose floating the deutsche mark. The French opposed the idea and advocated tighter capital controls. No agreement was reached at the meeting; the mark and the guilder were floated, while all other countries tightened capital controls. Ironically, some of the tax reforms called for in March 1971—capital income taxation and corporate taxes—still have to be tackled by the European Community.

### *Monetary Initiatives of the 1970s*

Figure 1 also shows that the collapse of the “North Atlantic” Bretton Woods system was followed by dramatic exchange rate fluctuations, during which the franc and the lira have progressively diverged from the dollar. Neither of the currencies has regained its stability, relative to the mark, that characterized the dollar-based regime of the 1960s.

The European monetary initiatives of the rest of the 1970s are better known. From April 1972 to March 1973, the “snake in the tunnel” strategy was in effect: the tunnel representing the bilateral fluctuation margins with the dollar (4.5 percent) and the snake the narrower margins of intra-European rates (2.25 percent). After March 1973, the European currencies floated freely against the dollar. After that point, the only stable members of the snake were Germany, Belgium, the Netherlands, and Luxembourg. The other large EC countries, France and Italy, soon left the system—in January 1974 and February 1973, respectively. France briefly rejoined from July 1975 to March 1976.

The European Monetary System was set up in December 1978 and became effective in March 1979. Its exchange rate mechanism included all EC members except the United Kingdom. Jacques Delors has noted that the EMS was based on intergovernmental agreement rather than on Community law.<sup>8</sup> While explicit references to economic and monetary union seem absent, the EMS was regarded as instrumental to further EC integration.

8. Delors (1989).

The purpose of the European Monetary System is to establish a greater measure of monetary stability in the Community. It should be seen as a fundamental component of a more comprehensive strategy aimed at lasting growth with stability, a progressive return to full employment, the harmonization of living standards and the lessening of regional disparities within the Community. The Monetary System will facilitate the convergence of economic development and give fresh impetus to the process of European Union.<sup>9</sup>

Whether the EMS actually provided that “fresh impetus” is not clear. Its success has been mainly reflected in the fact that changes in intra-European exchange rates became a matter of truly common concern. As a result, bilateral rates in Europe have fluctuated less than the dollar, despite the differences in trends (see figure 1). The success of the EMS has certainly contributed to the serious consideration being given to extending the reach and depth of the experiment. But as Marcello de Cecco and I note, the EMS, by itself, has not induced changes in monetary institutions that sustain closer cooperation: two of the EMS’s technical features that were designed with that objective—the European Monetary Cooperation Fund and the European currency unit (ECU)—did not achieve the status originally envisaged by their supporters.<sup>10</sup>

### *The Delors Report*

The roots of the most recent project for monetary union—the Delors report—are not in the monetary area. Unlike the initiative that led to the Werner report, which could be viewed as a last-resort effort to brace against a collapsing monetary system, the Delors report grew out of the June 1985 White Paper on the completion of the internal market and the 1986 Single European Act. The former laid out the “1992” plan; the latter was the outcome of an intergovernmental conference held in Luxembourg in December 1985 to modify the Treaty of Rome. The treaty now includes a formal commitment to complete the 1992 plan and make several institutional changes to facilitate its completion. These

9. So concluded the Presidency of the European Council in 1978; see de Cecco and Giovannini (1989, p. 2).

10. See de Cecco and Giovannini (1989). By contrast, Michael Emerson (1982) claims that the EMS has significantly affected the institutional development of the Community, in that it has “brought a major policy function back into the Community setting, as compared to the snake mechanism that had left it. It has linked together Community monetary and public finance mechanisms, and its economic policy coordination procedures.”

changes include extension of qualified-majority voting to about two-thirds of the draft directives that make up the 1992 plan and increased involvement of the European Parliament. A crucial pillar of the single market program is the liberalization of capital flows within the Community. This was achieved early with the June 1988 adoption, by the Council of Economic and Finance Ministers (ECOFIN), of a draft proposal on the creation of a European financial area. In the same month, the heads of state commissioned a study on the achievement of economic and monetary union from a group of central bankers and outside experts headed by Jacques Delors. The group presented its results at the European Council meeting in Madrid in June 1989.

The Delors report guides the current debate on monetary union. Its main feature is the concept of gradualism: monetary union is to be achieved over time so that the economies and the necessary institutions can adapt. Several reasons are given for the gradualist strategy. First, the mandate to the Delors committee explicitly asked for a plan that would achieve the "progressive realization of economic and monetary union." Sudden monetary reform was politically unacceptable in the summer of 1988. Second, monetary union is seen as part of a broader plan that includes the completion of the internal market. This view is inspired by optimal-currency-area arguments: sufficient mobility of goods and factors is a precondition for monetary union. Third, monetary union needs time to create new institutions, including a European central bank.

The gradual plan proceeds in three stages. In stage one, capital movements among all countries (except Spain, Greece, and Portugal) are fully liberalized. Membership in the Exchange Rate Mechanism of the EMS is enlarged. And, monetary policy cooperation is improved by giving more powers to the EC Committee of Central Bank Governors in order to facilitate so-called *ex ante* coordination of monetary policies. Exchange rate realignments are permitted during this first stage.

In stage two, which would take place several years in the future, the European System of Central Banks (ESCB) replaces the Committee of Central Bank Governors and the European Monetary Cooperation Fund. Exchange rates are virtually fixed, with realignments allowed only under exceptional circumstances, and monetary policy is set at the Community level, with the implicit understanding that national authorities follow the guidelines. In stage three, exchange rates are irrevocably locked and the



ECSB replaces the national central banks. At the end of stage three (a possible stage four itself) a single currency would be adopted.

The Delors report also deals with a number of measures in the economic field. Most important are the completion of the internal market program and increased macroeconomic policy coordination, in particular budgetary discipline achieved through “precise quantitative guidelines.”<sup>11</sup>

The report does not specify deadlines although the developments of the last year have provided some. At the European Council in June 1989, the heads of state agreed to embark on the first stage of the Delors plan. It was a significant step; as stated in the Delors report, “Although this process is set out in stages which guide the progressive movement to the final objective, the decision to enter upon the first stage should be a decision to embark on the entire process.”<sup>12</sup> At the Strasbourg Summit of December 1989, it was agreed that two intergovernmental conferences would convene by December 1990—one to prepare the changes in the Treaty of Rome needed for monetary union; the other to deal with political union. At the European Summit in Dublin in April 1990, the heads of state declared that the changes in the treaty relating to economic and monetary union must be ratified by national governments before the end of 1992. Hence, stage two of the Delors plan may begin in January 1993.

The Delors report was not motivated by an analysis of the costs and benefits of a monetary union in Europe, although subsequent studies have addressed some of these issues.<sup>13</sup> A study by the European Commission, entitled *One Market, One Money*, assesses the economic impact of the EMU resulting from several different policy developments, including elimination of transactions costs and foreign exchange risk premiums; achievement of price stability through an independent central bank; G7 coordination of exchange rates and distribution of world foreign exchange reserves and seigniorage gains; concern about budgetary policy; and loss of the exchange rate instrument to offset country-specific

11. I discuss the fiscal problems of monetary union in a later section.

12. Delors report (para. 39); see Committee for the Study of Economic and Monetary Union (1989, p. 31).

13. Padoa Schioppa (1988) was perhaps the first public official to advocate a modification of the EMS toward a monetary union. He argued that the integration of goods and financial markets brought about by the single market program would make the EMS too vulnerable to speculative attacks.

shocks.<sup>14</sup> The study relies on a series of partial equilibrium analyses of different markets, and appropriately refrains from producing a single summary quantification of the effects of monetary union.

Estimation of the welfare effects of a single currency, a classic question in international economics, hinges heavily on what is known about the demand for different currencies in an integrated area.<sup>15</sup> That knowledge is, at best, limited. Although this is an active area of research, a comprehensive analysis is still beyond reach.<sup>16</sup> In addition, political considerations play an important role in the discussion of the desirability of a monetary union, as Robert Triffin emphasized.<sup>17</sup> Hence this paper focuses on the process toward monetary union, taking the desirability of the final objective as given.

### *Difference between Delors and Werner Reports*

To an observer with no training in the language of diplomacy, the Delors report looks extremely similar to the Werner report. The latter is also made up of three stages—during the first stage policy coordination would be enhanced; during the second stage a “European Monetary Fund” would be set up; and during the third stage exchange rates would be irrevocably locked. During the first two stages, exchange rate adjustments would be allowed, though they should be unnecessary by the second stage. Furthermore, the Werner report contains several economic measures including the joint setting of both the medium-term objectives for macroeconomic policies and the broad outlines of short-term policies, and common agreement on the acceptable margins for national budget totals and on the method of financing deficits. Finally, both reports discuss the need to set up a European central bank.<sup>18</sup>

Their marked similarities suggest several questions: Is the Delors report any “better” than the Werner report? Why has the more recent plan for monetary reform enjoyed greater success? Have changes in the

14. Commission of the European Communities (1990).

15. Mundell (1968); McKinnon (1963); Kenen (1969); Cooper (1976).

16. See, in particular, Bertola (1989) and Canzoneri and Rogers (1990). A wide-ranging discussion of the economic effects of EMU is in Eichengreen (1990).

17. Triffin (1960).

18. The respective discussions are labeled “Community System for the Central Banks” in the Werner report and “European System of Central Banks” in the Delors report.

European political and economic climate made the prospects for monetary union brighter for the 1990s than they were for the 1970s?

The first question must have been raised within the Delors committee. The first of the papers published with the report addresses precisely this question.<sup>19</sup> The authors point out a number of technical problems with the Werner report, such as a "lack of safeguards against lapses in policy consensus," "institutional ambiguities," and a "lack of internal momentum." But, the differences in the two reports' respective political and economic environments, as Gunther Baer and Tommasa Padoa Schioppa stress, must have played a major role in the weaknesses of the Werner report.

### *Political Factors*

Observers have long noted that the 1986 Single European Act, which was the culmination of the EC integration process and which put forward the 1992 program, would have important political consequences. The political significance of the act has been evidenced by the heated debate between the United Kingdom and the other European governments regarding the way to complete the internal market.<sup>20</sup> Until last year, though, increased economic integration of the European Community had always preceded stronger political cohesion.<sup>21</sup>

With the events of 1989, however, political cohesion no longer takes its lead just from stronger economic ties, but has gained a strength of its own. The dismembering of the communist world has decreased the strategic significance of ties with the United States and has provided the conditions for an acceleration of European integration. An anecdote about how the 1990 intergovernmental conference was convened helps illustrate the new interplay of political and economic elements in the negotiations.<sup>22</sup> Up to the day before the start of the Strasbourg Summit in December 1989, German economic officials were unwilling to see an intergovernmental conference on monetary union called during the

19. Baer and Padoa Schioppa (1989).

20. See, for example, Wolf (1989).

21. In the 1960s the political issues tended to surface in the context of economic discussions. A good example is the defense of European monetary independence by Giscard d'Estaing (1969) and, before him, Rueff (1967), which was based on the desire to take away seigniorage from the United States.

22. This anecdote is based on discussions with members of the German delegation.

following three years; yet, at the end of the meeting, the monetary conference was convened for December 1990. This drastic reversal was most likely obtained in exchange for the support of German unification by the Community governments.

In summary, the differences in the world strategic scenario, and in particular the difference in the political relations among European states, may provide a more favorable environment for European monetary reform than was the case in the early seventies. The risk is that increased cross-border competition arising from the removal of controls will amplify political frictions among Western European governments and bring the integration plan to a halt. This prospect could be labeled the "Ridley scenario."

### *Economic Factors*

The differences between the economic conditions of the European Community in the 1990s and in the 1970s derive from two phenomena. The first is economic integration. Table 1 reports trade data for the six original members of the EC and shows the imports and exports to Community countries as a fraction of imports and exports to the rest of the world. By 1989, the only countries for which intra-Community trade has not swamped external trade are Germany (intra-Community imports are 110 percent of imports from the rest of the world, the same figure for exports is 120 percent) and Italy. All six countries have experienced steady growth in intra-Community trade since the 1960s. The differences between 1970 and 1989 are not dramatic, however, except for perhaps France and Italy. Economic integration will be further boosted by completion of the internal market. Indeed, the Commission suggests that a double feedback is at work between the single market program and monetary union, in that a single currency would help achieve more integrated markets. Yet, whether the 1990 Europe of twelve countries is a more integrated economy than the 1970 Europe of six countries is an open question.

The second economic phenomenon that differentiates the 1990s from the 1970s is the liberalization of financial markets. Historical experience suggests that all fixed exchange rate regimes have been characterized by extensive use of capital controls.<sup>23</sup> These controls were justified by a

23. See, for example, Giovannini (1989).

**Table 1. Intra-Community Trade Relative to Trade with the Rest of the World, Original EC Countries, 1960, 1970, 1989<sup>a</sup>**

Percent

	1960	1970	1989 <sup>b</sup>
<i>Exports</i>			
Belgium and Luxembourg	154.5	302.7	303.1
France	63.0	139.6	162.7
Germany	67.0	98.9	120.2
Italy	66.7	107.1	144.6
Netherlands	158.2	266.3	309.6
<i>Imports</i>			
Belgium and Luxembourg	131.0	196.0	239.1
France	53.5	126.7	189.0
Germany	66.3	106.3	109.8
Italy	58.1	91.3	133.3
Netherlands	118.1	172.7	158.9

Source: *European Economy*, November 1989.

a. The table reports each country's imports and exports to EC countries as a percent of imports and exports to the rest of the world.

b. Figures for 1989 are estimated using incomplete data.

desire to stem speculative attacks on central banks' reserves. The complete removal of capital controls will force European countries to create a new institutional arrangement to ensure closer monetary policy cooperation, since without cooperation fixed parities would very likely collapse.<sup>24</sup>

In summary, there are reasons to believe that, even though the Werner report and the Delors report have many similarities, the chances for monetary reform in Europe in the 1990s are significantly better than they were in the 1970s. Yet, a monetary union is by no means guaranteed. In the following section I review the recent experience of the present monetary system and introduce economic problems raised by the gradualist project of monetary union.

## Review of the Recent Experience

This section presents empirical evidence on the behavior of inflation and interest rates relative to exchange rates, with special attention to the past three years. For several reasons, I limit the discussion to the

24. This argument is advanced by Padoa Schioppa (1988).

experiences of France and Italy relative to Germany. First, these two countries are Germany's two largest trading partners and therefore carry a lot of political weight in the current negotiations on monetary reform. Second, France and Italy have participated in the exchange rate arrangement since its inception—unlike Spain and the United Kingdom, for example—and started from rather divergent initial conditions. Third, the two are unlike the small countries, whose openness vis-à-vis the rest of the EC makes monetary reform less questionable. Fourth, several aspects of France and Italy's recent experience can be applied to other countries.

Figures 2 and 3 plot the French franc–deutsche mark and the Italian lira–deutsche mark exchange rates during the EMS, together with their respective bilateral fluctuation margins. The discrete movements of the bilateral fluctuation margins occur at the dates of realignment of central parities.<sup>25</sup> Figure 4 plots the monthly percent changes in these bilateral exchange rates since June 1973.

The figures reveal a number of facts. First, the EMS period is characterized by trends in bilateral exchange rates. These trends are somewhat broken in the case of the franc, but appear largely accommodated by adjustments in bilateral parities in the case of the lira. Only in the past three years has the tendency of the franc and the lira to depreciate against the mark subsided. Correspondingly, the frequency of realignments is shown to have decreased recently.

Despite the presence of trends, especially in the early years of the EMS, figure 4 highlights a second empirical regularity: the variability of bilateral exchange rates has decreased since the start of the EMS (the vertical line at March 1979 marks the start of the EMS). This impression is confirmed by statistical tests. Nonparametric tests indicate that the volatility of total and unanticipated exchange rate changes has decreased since the formation of the EMS.<sup>26</sup>

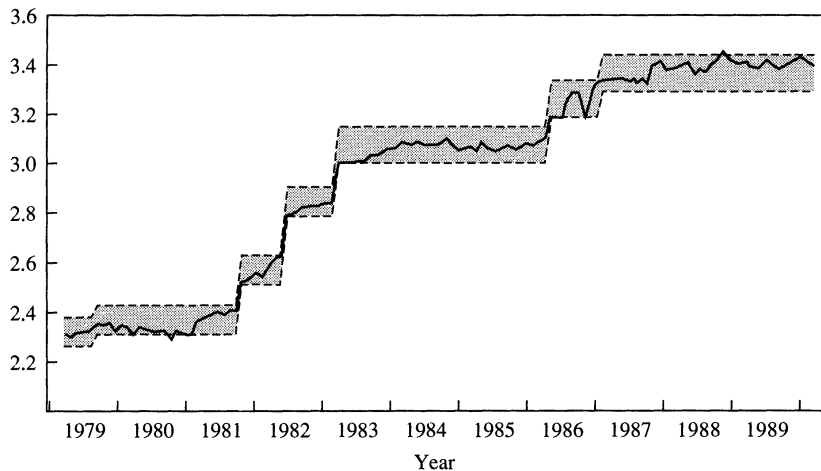
Finally, the three figures suggest that both the volatility of the intra-European exchange rates and the tendency of the franc and lira to depreciate against the mark have decreased since 1987. Some observers

25. In the case of the lira—appearing in figure 3—the January 1990 narrowing of the band (from 6.0 percent to 2.25 percent on both sides) was accomplished together with an adjustment of the central parity: the central parity was changed so that the upper bound before and after the realignment remained the same.

26. See Giavazzi and Giovannini (1989).

**Figure 2. The French Franc in the EMS, March 1979–December 1989<sup>a</sup>**

Francs per deutsche mark

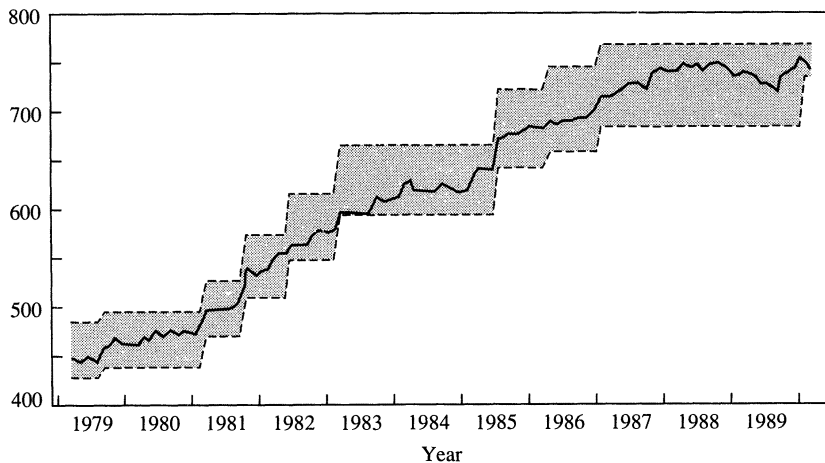


Sources: IMF, *International Financial Statistics*, and Masera (1987).

a. The franc-mark exchange rate is shown, along with the shaded bilateral fluctuation margins.

**Figure 3. The Italian Lira in the EMS, March 1979–December 1989<sup>a</sup>**

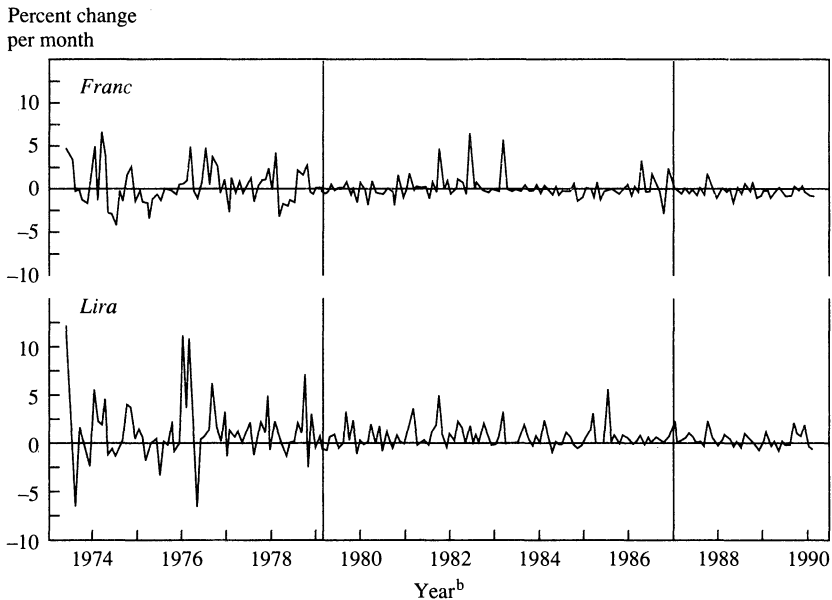
Liras per deutsche mark



Sources: IMF, *International Financial Statistics*, and Masera (1987).

a. The lira-mark exchange rate is shown, along with the shaded bilateral fluctuation margins.

**Figure 4. Fluctuations in the Lira-Mark and Franc-Mark Exchange Rates, June 1973–December 1989<sup>a</sup>**



Source: IMF, *International Financial Statistics*.

a. Vertical lines mark changes in the exchange rate regime: March 1979 marks the start of the EMS; January 1987 marks the change in exchange rate management announced by France and Italy.

b. Ticks represent January of each year.

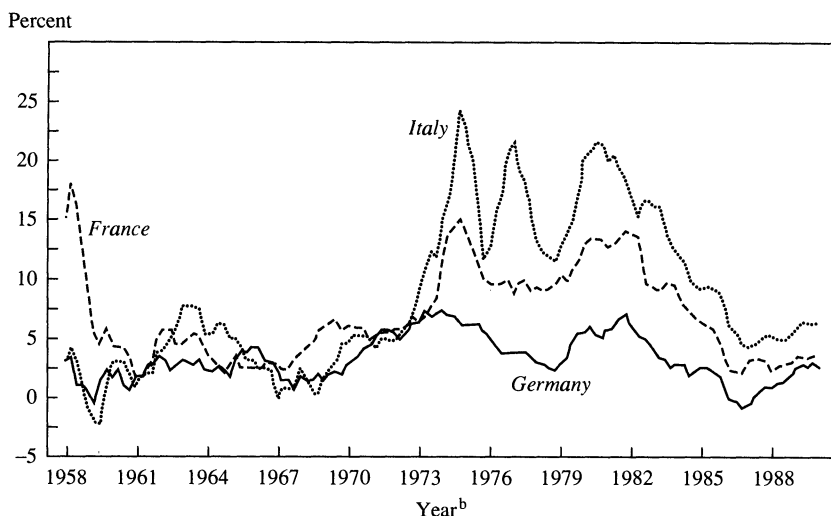
claim that 1987 marks the beginning of a change in the EMS regime (the vertical line at January 1987 marks the beginning of this new regime).<sup>27</sup> Since that time, France and Italy have resolutely avoided exchange rate depreciations. The change in attitude at the Banque de France and the Banca d'Italia was especially noticeable in 1989, when both resisted pressure from the Bundesbank to devalue through the further tightening of domestic credit.

### *Exchange Rates and Inflation*

Figure 5 reports consumer price index (CPI) inflation rates for France, Germany, and Italy since 1958. The figure shows that inflation rates in

27. See, in particular, Giavazzi and Spaventa (1990).



**Figure 5. Inflation in France, Italy, and Germany, January 1958–March 1989<sup>a</sup>**

Source: IMF, *International Financial Statistics*.

a. Inflation figures are the annualized percent changes in the monthly consumer price index.

b. Ticks represent January of the year indicated.

France, Germany, and Italy began to diverge significantly after the first oil shock; these divergences have not been completely eliminated. The EMS was created right before the second oil shock, and significant reduction in and convergence of inflation rates are not observed until the second half of the 1980s. The most recent data indicate almost complete convergence of French and German inflation, while Italy maintains a differential of about 3.5 percent with its partners. The experience of most other EC countries has been similar to that of France and Italy—the exceptions being Greece and Portugal, whose inflation rates exceeded 10 percent in the past year.

Whether the EMS has significantly helped its members fight inflation is the subject of some controversy. The view I have taken elsewhere is that the statistical evidence supporting the hypothesis that the EMS has made a difference is very weak.<sup>28</sup> The stochastic process governing

28. Giavazzi and Giovannini (1989).

output and wage and price inflation has shifted in France, Denmark, Germany, Ireland, and Italy. The relation between output and inflation has worsened in Germany and has improved in all other countries, as the "imported credibility" theory would predict. However, the shift is not statistically significant, though the small sample size may account for the lack of significance. Furthermore, a similar shift is observed for the United Kingdom, whose currency was floating at the time. And finally, the shift occurs after 1983 and not at the inception of the EMS. In conclusion, the "credibility boost" of the EMS has been rather limited, though it should not be wholly dismissed.

The interaction of exchange rate changes and inflation is highlighted in table 2, which reports the annual rates of change in unit labor costs and the annual rates of change in the franc-mark and lira-mark exchange rates. The table underscores the differences within the EMS during the 1980s. Until 1986, large exchange rate depreciations in France and Italy accompanied large divergences in the growth rates of unit labor costs relative to Germany. Notice that in 1981 and 1982 the rate of depreciation of the exchange rate in France exceeded the rate of change of relative labor costs, while in Italy the opposite was true. This difference probably reflects the well-known decision by Italian authorities to enter the EMS with a "depreciated" currency. This step helped them disinflate through appreciation of the *real* exchange rate.

After 1987, exchange rates have been stable. Yet, in the case of Italy, the growth rate of unit labor costs has continued to exceed that in Germany. Table 3 reports the growth of real compensation per employee, measured in terms of the CPI. In the past three years, despite the persistence of inflation differentials, real wages have grown significantly in Italy, whereas French wages have remained broadly in line with German wages. Finally, table 4, which reports the growth of productivity, shows that the three countries have performed similarly; adjusting for productivity growth does not significantly change the pattern of competitiveness reflected by the growth rate of relative wages.

The effects of inflation differentials on international competitiveness are summarized in table 5. The table reports the levels of wages in France and Italy (relative to Germany) when adjusted for productivity, and the terms of trade of the two countries (also relative to Germany). Relative wages are adjusted by multiplying the ratio of wage shares in GDP by the relative GDP deflator. Terms of trade are export unit values divided

**Table 2. Changes in Unit Labor Costs and in the Exchange Rate, France and Italy Relative to Germany, 1980–89**

Percent

Year	France and Germany		Italy and Germany	
	Relative unit labor costs <sup>a</sup>	Exchange rate <sup>b</sup>	Relative unit labor costs <sup>a</sup>	Exchange rate <sup>b</sup>
1980	6.9	−0.7	12.3	2.3
1981	8.0	10.6	16.9	12.0
1982	8.3	11.0	13.4	8.3
1983	8.3	8.3	14.9	5.7
1984	5.2	−0.6	8.1	0.9
1985	2.8	0.8	6.4	10.9
1986	−0.4	8.3	2.9	2.6
1987	−0.1	1.5	4.3	5.7
1988	0.8	0.8	5.9	−0.8
1989 <sup>c</sup>	1.5	0.2	5.9	2.0

Source: *European Economy*, November 1989.

a. The change in relative unit labor costs is the difference between the growth rate of unit labor costs in each country and that in Germany.

b. The change in the exchange rate is the annual rate of change of the franc-mark and lira-mark exchange rates.

c. Figures for 1989 are estimated using incomplete data.

**Table 3. Change in Real Compensation per Employee, Germany, France, and Italy, 1979–89<sup>a</sup>**

Percent

Year	Germany	France	Italy
1979	1.8	2.0	2.4
1980	1.0	1.8	1.9
1981	−0.8	1.1	3.9
1982	−0.5	2.3	0.2
1983	0.5	0.4	0.8
1984	1.0	0.5	0.0
1985	1.0	0.8	1.0
1986	4.1	1.4	1.6
1987	2.2	0.6	4.0
1988	2.0	1.1	3.8
1989 <sup>b</sup>	0.0	0.5	2.7

Source: *European Economy*, November 1989.

a. The table shows annual growth rates deflated by the consumer price index.

b. Figures for 1989 are estimated using incomplete data.

by import unit values. The table highlights the differences between France and Italy. The former corrected its own losses in competitiveness with the devaluations of 1983 and 1986, while the latter's adjusted relative wages have increased steadily throughout the past ten years, except for

**Table 4. Productivity Growth, Germany, France, and Italy, 1982–89<sup>a</sup>**  
Percent

<i>Year</i>	<i>Germany</i>	<i>France</i>	<i>Italy</i>
1982	1.1	2.4	–0.3
1983	3.1	1.1	0.4
1984	2.7	2.3	2.8
1985	1.3	2.0	2.0
1986	1.3	1.9	1.9
1987	1.2	2.1	2.9
1988	3.0	2.8	2.5
1989 <sup>b</sup>	2.3	1.8	2.6

Source: *European Economy*, November 1989.

a. The table reports annual growth rates in productivity, which is defined as GDP in constant market prices per person employed.

b. Figures for 1989 are estimated using incomplete data.

a small correction in 1986. Relative terms of trade, which include the effects of fluctuations of dollar prices on the import and export baskets of these countries, broadly reflect the behavior of relative wages.<sup>29</sup>

In summary, the recent and drastic stabilization of exchange rates has occurred at a time when inflation rates, in Italy especially, have not fallen to German levels. As a result, the stabilization has been accompanied—in both France and Italy—by losses in competitiveness relative to Germany. In the case of Italy, this loss in competitiveness adds to a sustained trend of real appreciations that has increased adjusted relative wages by as much as 40 percent since 1980. The repercussions of these policies on external accounts are shown in table 6, which reports current account balances and international capital flows. The French and Italian losses in competitiveness of the past three years are reflected in widening current account deficits; they are, however, *overfinanced* by capital inflows in both countries. The balance-of-payments surpluses of France and Italy in the past three years indicate that the stance of monetary (domestic credit) policies in the two countries has been tighter than in Germany. Table 7 reports data on output growth and unemployment and shows that since the mid-1980s the three countries have had surprisingly similar performances. Sustained growth and high unemployment characterize the recent experiences of all three countries. The large move-

29. In the case of Italy, the divergences between the terms of trade and the aggregate relative wages suggest divergent behavior of wages in the tradable and nontradable sectors.

**Table 5. Adjusted Relative Wages and Terms of Trade, France and Italy Relative to Germany, 1979-89**

Ratio

Year	France and Germany		Italy and Germany	
	Relative wages <sup>a</sup>	Terms of trade <sup>b</sup>	Relative wages <sup>a</sup>	Terms of trade <sup>b</sup>
1979	98.6	103.0	90.5	97.4
1980	104.8	100.0	97.8	100.0
1981	108.7	101.3	106.1	98.9
1982	105.1	100.3	108.5	101.3
1983	102.8	100.2	117.4	103.4
1984	105.3	100.9	122.2	104.2
1985	109.3	103.0	123.6	104.1
1986	104.1	102.0	121.3	105.6
1987	99.7	98.4	121.4	104.3
1988	99.9	98.8	126.9	104.5
1989 <sup>c</sup>	101.1	99.4	137.2	104.6

Source: *European Economy*, November 1989.

a. Adjusted relative wages are the ratio of adjusted wage shares (total economy) in GDP, multiplied by the (exchange rate adjusted) ratio of GDP deflators, for France and Italy relative to Germany.

b. Terms of trade are the ratio of export unit values to import unit values, indexed with 1982 = 100, for France and Italy relative to Germany.

c. Figures for 1989 are estimated using incomplete data.

ments in relative prices have had a small impact on output growth because of strong domestic demand in Italy and France.

### *Exchange Rates and Interest Rates*

Relative interest rate levels are measured by nominal interest rate differentials adjusted by changes in the nominal exchange rate. Thus, both interest rates and exchange rates determine the return to investors. The realized difference in return,  $d$ , between a foreign and domestic investment is given by

$$(1) \quad d = R - (R^* + \hat{s}),$$

where  $R$  and  $R^*$  represent the nominal domestic and foreign rates of interest respectively, and  $\hat{s}$  is the percent change in the price of foreign currency in terms of the domestic currency.<sup>30</sup>

30. This relation is an approximation. It is exact for continuously compounded rates.

**Table 6. Balance of Payments, Germany, France, and Italy, 1983–89**

Billions of U.S. dollars

Year	Germany		France		Italy	
	Current account <sup>a</sup>	Capital account <sup>b</sup>	Current account <sup>a</sup>	Capital account <sup>b</sup>	Current account <sup>a</sup>	Capital account <sup>b</sup>
1983	5.41	–1.24	–5.17	1.08	1.38	–5.53
1984	9.75	–7.63	–0.88	0.57	–2.50	1.58
1985	17.00	–22.64	–0.04	–5.64	–3.54	8.41
1986	40.09	–49.43	2.43	–7.29	2.91	–8.01
1987	46.12	–73.34	–4.45	2.82	–1.66	–7.67
1988	50.47	–31.08	–3.55	11.23	–5.45	10.47
1989 <sup>c</sup>	55.48	–58.43	–4.30	5.03	–13.50	26.33

Sources: IMF, *International Financial Statistics*, and the Bank of Italy.

a. The current account balance excludes exceptional financing.

b. The capital account balance is calculated as the total change in reserves less the current account balance.

c. The 1989 Italian data refer to the period January–October; data are from the Bank of Italy.

**Table 7. Output Growth and Unemployment, Germany, France, and Italy, 1983–89<sup>a</sup>**

Percent

Year	Germany		France		Italy	
	GDP growth	Unemployment	GDP growth	Unemployment	GDP growth	Unemployment
1983	1.5	6.9	0.7	8.2	1.1	9.0
1984	2.8	7.1	1.3	9.9	3.2	9.5
1985	2.0	7.3	1.7	10.3	2.9	9.4
1986	2.3	6.5	2.1	10.4	2.9	10.6
1987	1.9	6.4	2.2	10.5	3.1	10.1
1988	3.7	6.4	3.4	10.2	3.9	10.6
1989 <sup>b</sup>	3.8	5.6	3.3	9.5	3.5	10.5

Source: *European Economy*, November 1989.

a. The table reports annual growth rates of GDP and unemployment as a percent of the civilian labor force.

b. Figures for 1989 are estimated using incomplete data.

The expected rate-of-return differential,  $r$ , is given by

$$(2) \quad r = R - (R^* + \hat{s}^e),$$

where  $\hat{s}^e$  is the expected rate of depreciation of the domestic currency relative to the foreign currency. The realized return differential can be decomposed thus,

$$(3) \quad d = r + (\hat{s}^e - \hat{s}).$$

That is, realized rate-of-return differentials are the sum of two components: expected rate-of-return differentials and unexpected changes in

exchange rates, or exchange rate “surprises.” The surprises are only in exchange rates because both the domestic and foreign interest rates are fully known when the investment is made. In other words, nominal interest rates are assumed to be free of default risk. In what follows, I report evidence on  $d$  and provide estimates of the decomposition in equation 3. The decomposition is carried out by computing plausible estimates of the expected rate-of-return differentials. Estimates of exchange rate surprises are the residuals.<sup>31</sup>

### *Realized Rate-of-Return Differentials*

Realized rate-of-return differentials are obtained by computing the net profit from two strategies in the foreign exchange market. The first strategy, taking a long position in marks, is to borrow liras or francs, buy marks spot, lend marks, and then sell marks spot at maturity. The second, taking a short position in marks, is to borrow marks, buy liras or francs spot, lend liras or francs, then repay the mark loan by selling the liras or francs spot at maturity. Profits for both strategies are computed in dollars.

Because Italy and France imposed controls on international capital flows in the first half of the 1980s and thus effectively isolated the domestic and international money markets in their currencies, I use data on the offshore (Euro) market in French francs, deutsche marks, and Italian liras. An added advantage of these data is that offshore money market instruments that are denominated in different currencies are practically identical as far as reserve, insurance, and tax provisions are concerned.

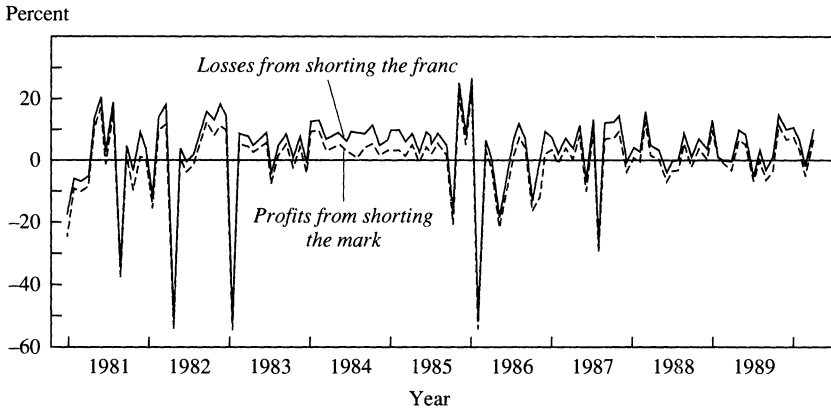
The calculation of speculative profits takes explicit account of the transactions costs. Specifically, the profits on a long position in marks are

$$(4) \quad \tau \left[ (1 + R_t^{*B}/\tau) \frac{S_{t+12/\tau}^{*B}}{S_t^{*A}} - (1 + R_t^A/\tau) \frac{S_{t+12/\tau}^A}{S_t^B} \right],$$

where  $\tau$  equals 12 or 1, depending on whether interest rates are monthly or annual (the subscript  $t$  is monthly),  $R^*$  is the mark interest rate in annual terms,  $R$  is the interest rate on franc or lira deposits,  $S^*$  is the

31. For an analysis of interest rate differentials between Spain, Portugal, and Germany, see de Macedo and Torres (1989).

**Figure 6. Profitability of One-Month Investments: The Franc Relative to the Mark, January 1981–May 1990<sup>a</sup>**



Source: Data Resources Incorporated (DRI) data base.

a. The figure shows the annual percent return on investment strategies of shorting the franc (borrowing francs to lend marks) and shorting the mark (borrowing marks to lend francs) for one-month deposits. All returns are calculated in U.S. dollars.

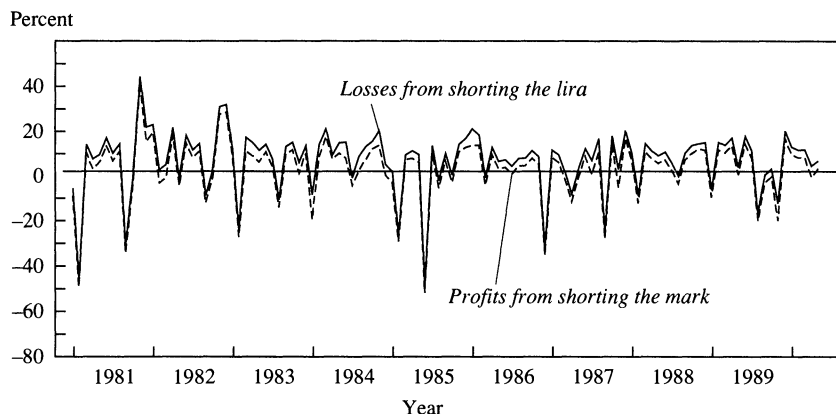
dollar-mark exchange rate, while  $S$  is the price of one lira or one franc in dollars. The subscripts  $B$  and  $A$  denote bid and asked rates, respectively. The profits on a short position in marks are obtained by interchanging the two terms within the brackets in equation 4 and substituting bid rates for asked rates and asked rates for bid rates.

Figures 6 and 7 show the profits (computed using equation 4) over the period January 1981–May 1990 on one-month investments. The profits are reported from both a strategy of borrowing francs or liras and lending marks and a strategy of borrowing marks and lending francs or liras. A solid line denotes the former; a dotted line denotes the latter. When it is profitable to borrow francs or liras and then lend marks, the solid line falls below zero. Conversely, when the opposite strategy is profitable, the dotted line rises above zero.<sup>32</sup> The distribution of realized returns is very similar for both currencies: shorting the franc and the lira relative to the mark has been profitable less than a quarter of the time during the past ten years, and almost never since the beginning of 1988. However, when profitable, shorting the franc and lira has yielded high returns.

32. For both deposit rates and exchange rates, the source is Reuters. All series are sampled at the London close.



**Figure 7. Profitability of One-Month Investments: The Lira Relative to the Mark, January 1981–May 1990<sup>a</sup>**



Source: DRI data base.

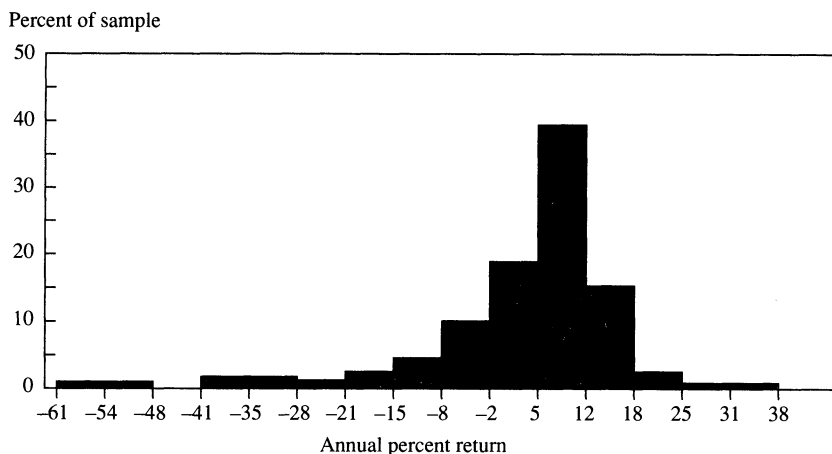
a. The figure shows the annual percent return on investment strategies of shorting the lira (borrowing liras to lend marks) and shorting the mark (borrowing marks to lend liras) for one-month deposits. All returns are calculated in U.S. dollars.

By contrast, the figures show that shorting the mark in favor of the franc or lira has yielded lower but much more consistent returns. Indeed, this strategy has been profitable 65 percent of the time in the case of the franc, and 75 percent in the case of the lira. Figure 8, which plots the distribution of returns from shorting the mark and lending liras, illustrates this asymmetry.<sup>33</sup> The distribution of lira returns is approximately the same, with the highest frequency of small positive realizations, and a very low frequency of extremely negative or extremely positive realizations.

The profitability of investments in one-year deposits—shown in figures 9 and 10—has followed a pattern similar to, though more marked than, the one-month investments. Shorting the franc in favor of the mark has been profitable only 30 percent of the time, while the opposite strategy was profitable 70 percent of the time.<sup>34</sup> Contrary to the evidence from one-month interest rates, the size of speculative returns is similar

33. The sample distribution of returns for the franc relative to the mark is extremely similar.

34. I report both statistics because there could well be several instances when, due to transactions costs, neither strategy is profitable.

**Figure 8. Distribution of Lira Returns on Shorting the Mark: January 1981–June 1990<sup>a</sup>**

Source: DRI data base.

a. The figure shows the frequency of realized returns for a strategy of borrowing marks in order to lend liras in the one-month Eurodeposits market.

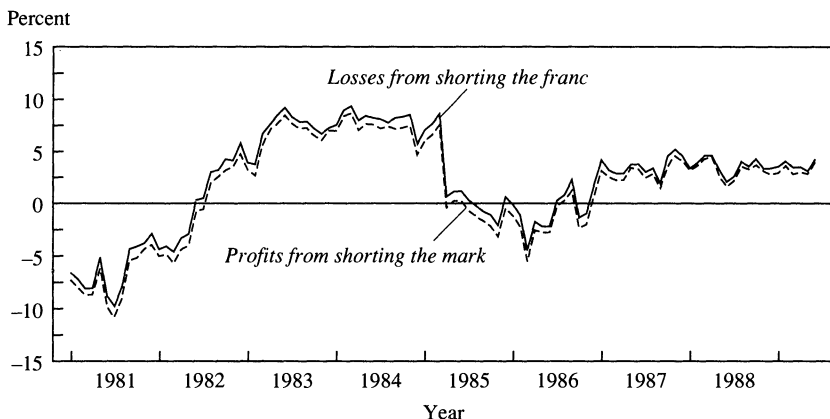
for both strategies. In the case of the lira, speculation against the mark has been profitable 86 out of the 102 months in the sample, while the opposite strategy has been profitable only 13 out of 102 months. An investor would have made money consistently, every month from June 1981 to June 1984 and from January 1987 to June 1990, had he simply borrowed marks to invest in liras. Strikingly, the size of the “short-mark” positive profits is much larger than that of the “short-lira” positive profits.

### *Interest Rate Differentials and Exchange Rate Margins*

The analysis of bilateral exchange rate margins provides additional evidence relevant to the decomposition of realized rate-of-return differentials.<sup>35</sup> In March 1979, France and Italy declared that they would not allow their exchange rates with the mark to cross given margins, without an official modification of the margins. Given this intention, suppose that the required rate-of-return differential between marks and francs were zero. If the upper bound on the franc-mark exchange rate were

35. See Svensson (1990) for an application of this analysis to the Swedish krona.

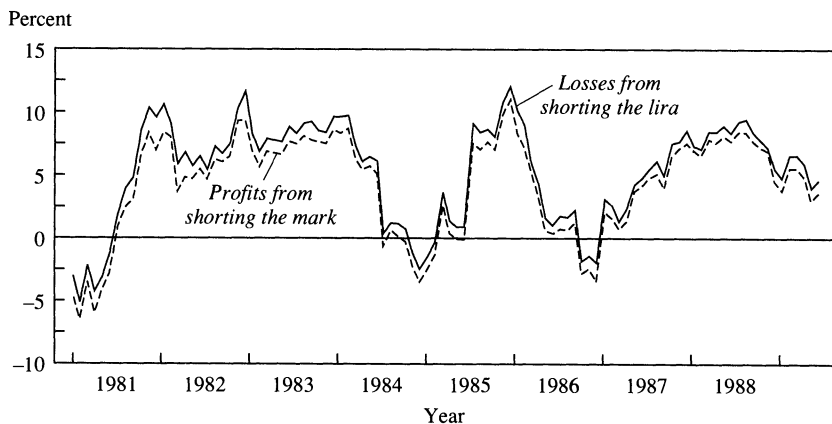
**Figure 9. Profitability of One-Year Investments: The Franc Relative to the Mark, January 1981–June 1989<sup>a</sup>**



Source: DRI data base.

a. The figure shows the annual percent return of investment strategies of shorting the franc (borrowing francs in order to lend marks) and shorting the mark (borrowing marks to lend francs) for one-year deposits. All returns are calculated in U.S. dollars.

**Figure 10. Profitability of One-Year Investments: The Lira Relative to the Mark, January 1981–June 1989<sup>a</sup>**



Source: DRI data base.

a. The figure shows the annual percent return of investment strategies of shorting the lira (borrowing liras in order to lend marks) and shorting the mark (borrowing marks to lend liras) for one-year deposits. All returns are calculated in U.S. dollars.

fully credible, the franc interest rate at time  $t$  could never exceed the following value:

$$(5) \quad \bar{R}_t = \left[ (1 + R^*) \frac{\bar{S}}{S_t} - 1 \right].$$

For simplicity, I consider only interest rates on one-year investments. In the equation,  $\bar{S}$  denotes the upper bound on the franc-mark exchange rate, while  $S_t$  is the spot franc-mark exchange rate at time  $t$ . Similarly, the franc interest rate can never be lower than:

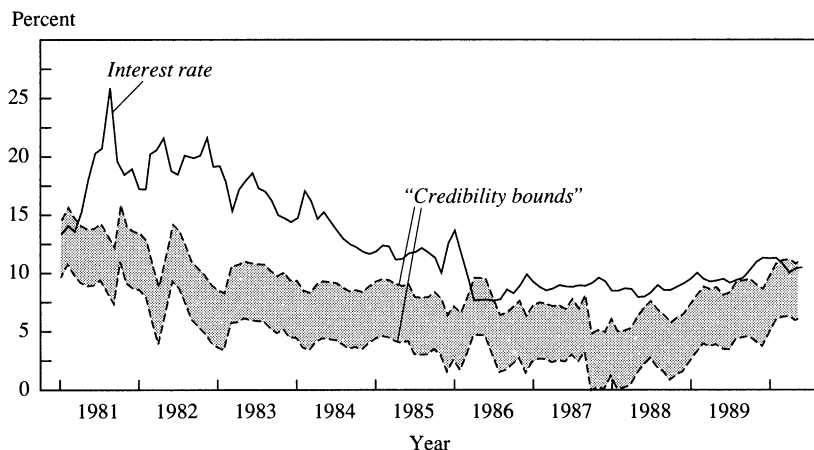
$$(6) \quad \underline{R}_t = \left[ (1 + R^*) \frac{\underline{S}}{S_t} - 1 \right],$$

where  $\underline{S}$  is the lower bound on the franc-mark exchange rate.

$\bar{R}_t$  and  $\underline{R}_t$  are observable at every time  $t$ . If the franc interest rate at  $t$  is outside these two bounds, either the margins are not credible—that is, agents expect that, *over the maturity of the interest rates considered*, the exchange rate can cross the margins—or the required rate-of-return differentials are nonzero.

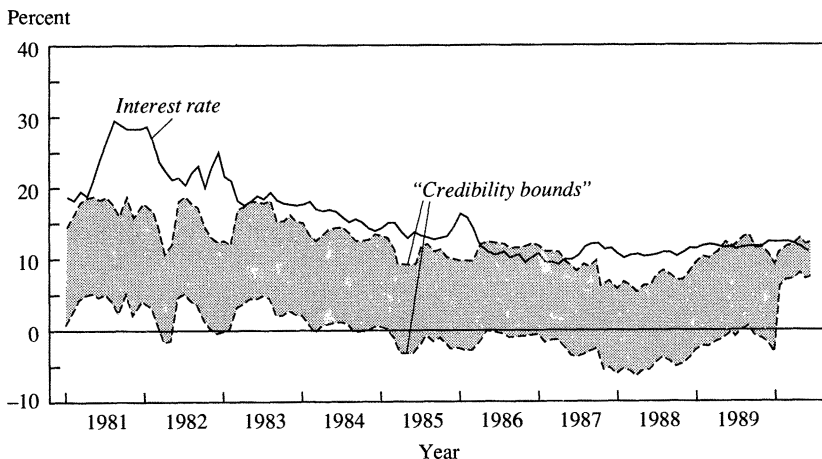
Figures 11 and 12 compare the actual one-year franc and lira interest rates with the upper and lower “credibility” bounds implied by the spot

**Figure 11. Franc Interest Rate and its “Credibility Bounds,” January 1981–June 1990<sup>a</sup>**



Sources: DRI data base and Masera (1987).

a. The solid line depicts the actual one-year franc interest rate. The dashed lines depict the “credibility bounds” implied from the spot exchange rates, the exchange rate margins, and the mark interest rates (see equations 5 and 6).

**Figure 12. Lira Interest Rate and Its "Credibility Bounds," January 1981–April 1990<sup>a</sup>**

Sources: DRI data base and Masera (1987).

a. The solid line depicts the actual one-year lira interest rate. The dashed lines depict the "credibility bounds" implied from the spot exchange rates, the exchange rate margins, and the mark interest rates (see equations 5 and 6).

exchange rates, the exchange rate margins, and the mark interest rates. Both the franc and lira interest rates are consistently above the upper bound, which confirms the evidence on the systematic biases of realized returns discussed previously. If risk premiums are second-order, figures 11 and 12 indicate that the perceived probability of realignments is quite high, since the *expected value* of the exchange rate exceeds the upper bound. The highest values in the distribution of exchange rates one year ahead must significantly exceed the upper bound in order for the mean to be greater than the upper bound. Notice, however, that the divergence between the actual interest rates and the upper bounds has decreased over the last three years.

### *Long-Term Interest Rates*

To complete the analysis of interest rates, I report nominal long-term rates in table 8. These rates are long-term government bond yields from the IMF's *International Financial Statistics*. A number of problems with the data, however, preclude the precise calculations presented above. First, the maturity of these bonds is not reported and may not be the

**Table 8. Long-Term Government Bond Yields, Germany, France, and Italy, 1979-90<sup>a</sup>**  
Percent

<i>Period</i>	<i>Germany</i>	<i>France</i>	<i>Italy</i>
1979-86	7.96	12.24	16.01
1987-89	6.34	9.09	10.19
January 1990	8.07	9.52	11.52
June 1990	8.86	9.76	11.69

Source: *International Financial Statistics*, October 1990 and 1990 Yearbook.

a. The figures are the average bond yields for the period shown.

same in each country. Second, domestic government bonds have not been as freely tradable as Eurodeposits, especially during the first half of the 1980s.

The decomposition of return differentials on long-term interest rates follows:

$$(7) \quad \frac{1 + R_t^L}{1 + R_t^{*L}} = (1 + r^L) \left[ \prod_{i=0}^L (1 + \hat{s}_{t+i}^e) \right]^{1/L},$$

where  $L$  represents the maturity (in years) of the bonds, and  $R^L$  and  $R^{*L}$  are the domestic and foreign rates of interest for bonds of maturity  $L$ ;  $r^L$  is the risk premium, and  $\hat{s}_t^e$  is the expected annual rate of change in the exchange rate from year  $t$  to year  $t + 1$ . Equation 7 says that, net of the risk premium, interest rate differentials represent the *average* expected rate of depreciation of the exchange rate over the maturity of the bonds. From this perspective, the large differentials among nominal bond rates observed in January 1990 suggest rather large expectations of exchange rate adjustment. In order to verify this guess, however, it is necessary to evaluate the size of risk premiums.

### *Alternative Explanations for Interest Rate Differentials*

Equation 3 breaks down the realized excess returns of franc and lira assets relative to mark assets. The equation says that realized rate-of-return differentials equal the sum of expected rate-of-return differentials and exchange rate surprises. To determine whether the long sequences of large return differentials could be a long sequence of exchange rate surprises, I discuss the determinants of the first term on the right-hand side of equation 3 and its plausible size. An attempt to quantify expected

rates of return should consider three possible sets of determinants: transactions costs, capital-market segmentations (capital controls), and the pricing of risk with perfect and imperfect capital markets.

**TRANSACTIONS COSTS.** In the presence of transactions costs and uncertainty about returns on foreign currency deposits, traders' strategies can be characterized by an "inactivity" band, the size of which is determined by the magnitude of the transactions costs in the foreign exchange markets and the uncertainty in expected rates of return.<sup>36</sup> An increase in the expected return on lira deposits, for instance, may not be accompanied by a shift in portfolios if traders believe that the costs of adjusting the portfolios and closing out their position in the future exceed the expected return on the lira investment. Uncertainty and transactions costs therefore induce traders not to eliminate expected rate-of-return differentials unless they reach sufficiently high values, or are expected to persist.

What does this observation imply for equilibrium returns? If all market participants behave according to the same trading rules, it is possible that, even in the absence of risk aversion, expected rate-of-return differentials will be positively autocorrelated.<sup>37</sup> With rational expectations, realized rate-of-return differentials would also be positively autocorrelated. Autocorrelation of returns, however, does not imply the biases that seem to characterize excess returns on lira and franc deposits. Therefore, the effects of transactions costs are not likely to explain the evidence reported in figures 6 through 10.

**CAPITAL CONTROLS.** The segmentation of national capital markets prevents efficient portfolio diversification and induces expected rate-of-return differentials on assets located in different countries. France and Italy used controls, at least until 1986, that prevented full arbitrage between domestic and foreign capital markets. These controls have typically generated large differentials between domestic and offshore interest rates on the same types of interbank deposits.

The evidence in figures 6 to 10 is constructed using interest rates on Eurodeposits, that is, rates on deposits denominated in francs, marks, and liras but located outside the three countries. In principle, Eurorates

36. Baldwin (1990).

37. Absence of risk aversion implies a world where expected rate-of-return differentials would be zero in the absence of transactions costs.

should simply reflect the market's assessment of risk and exchange rate changes.

Yet capital controls may also affect offshore interest rates through two channels: first, the difficulty in transferring funds from onshore to offshore may give rise to liquidity premiums due to the thinness of the offshore market; second, all transfers of funds in the Euromarkets are cleared in the countries of the currencies being traded—high political risk may be reflected in an unwillingness to trade and in additional liquidity premiums. Neither argument seems to apply to the currencies considered. Funds do not need to be transferred from onshore to offshore for agents to take advantage of the profit opportunities documented above. It is sufficient to purchase liras or francs in the foreign exchange market, and then lend them in the Eurodeposit market. As far as political risk is concerned, restrictions that prevent the clearing of funds related to offshore transactions would be extremely severe and are unlikely to be imposed in countries like France and Italy, even after all types of transfers of funds between domestic residents and foreigners have been prohibited.

Finally, the evidence discussed previously indicates that realized return differentials have persisted well after the liberalization of capital controls in 1986. Since that time, the wedge between onshore rates and offshore rates has disappeared. In some instances domestic interest rates have been higher than offshore rates.<sup>38</sup>

EQUILIBRIUM PRICING OF FOREIGN EXCHANGE RISK. The next potential explanation of expected rate-of-return differentials is the equilibrium pricing of foreign exchange risk. To assess the importance of foreign-exchange risk premiums, one must rely on some version of the capital asset pricing model (CAPM). However, empirical evidence has repeatedly rejected various specifications of the international CAPM, precisely because the risk premiums generated by these models are significantly smaller and less volatile than empirical risk premiums.<sup>39</sup>

The potential sources of the CAPM's empirical failure are two. First, statistical tests may have rejected the CAPM because of specification error. In particular, it may be that agents are not all alike, either because

38. See Giavazzi and Spaventa (1990). These phenomena reflected liquidity problems, onshore rather than offshore, and restrictions on capital inflows.

39. The empirical literature on the CAPM is vast. For a critical survey of international models, see Frankel and Meese (1987).



they have different attitudes toward risk, or because they cannot use financial markets to diversify away certain types of risk. In both cases the “representative agent” paradigm does not apply. As the following discussion will point out, the computation of risk premiums can, to some extent, allow for these problems. Second, if the pattern of returns in the foreign exchange markets is such that large adjustments occur infrequently, standard tests of the CAPM that do not account for this peculiar distribution of returns are flawed: this is the “peso” problem.<sup>40</sup> In the presence of a peso problem, even if expectations are rational, the probability that sample averages match agents’ expectations is very low in small samples, despite the fact that sample averages are unbiased estimates of population averages.

Consider the standard representative-agent CAPM. From the investor’s optimization problem, the model yields equilibrium relations between conditional expectations and conditional covariances of asset returns. As a general framework, I adopt the version of the CAPM derived by Philippe Weil and myself.<sup>41</sup> When rates of return on the assets in the portfolio and consumption growth are jointly lognormally distributed,<sup>42</sup> the equilibrium relations between expected returns on deposits denominated in francs ( $f$ ), liras ( $l$ ), and marks ( $m$ ) are:

$$(8) \quad \ln \left[ \frac{E(\tilde{R}^f)}{E(\tilde{R}^m)} \right] = \rho \frac{1 - \gamma}{1 - \rho} (\sigma_{f,c} - \sigma_{m,c}) + \frac{\gamma - \rho}{1 - \rho} (\sigma_{f,M} - \sigma_{m,M}),$$

$$(9) \quad \ln \left[ \frac{E(\tilde{R}^l)}{E(\tilde{R}^m)} \right] = \rho \frac{1 - \gamma}{1 - \rho} (\sigma_{l,c} - \sigma_{m,c}) + \frac{\gamma - \rho}{1 - \rho} (\sigma_{l,M} - \sigma_{m,M}).$$

When deposits in currency  $i$  have a gross return, adjusted for changes in the exchange rate, of  $\tilde{R}^i$ , the term on the left-hand side is the log of the ratio of expected gross returns measured in dollars. The reciprocal of the coefficient of intertemporal substitution is  $\rho$ , and  $\gamma$  is the coefficient of relative risk aversion. The variable  $\sigma_{i,M}$  is the covariance of the log of the gross rate of return on asset  $i$  with the log of the gross return on the market portfolio, while  $\sigma_{i,c}$  is the covariance of the log of the gross rate

40. See Krasker (1980).

41. Giovannini and Weil (1990).

42. This assumption can only hold approximately. Giovannini and Jorion (1989) argue that the approximation is satisfactory.

of return on asset  $i$  with the log of the gross rate of growth of consumption. The equations are defined for  $\rho \neq 1$ .<sup>43</sup>

These equations include traditional asset pricing models as special cases. For example, under logarithmic risk preferences ( $\gamma = 1$ ) equations 8 and 9 collapse to the so-called “static” asset pricing equations, where only the covariance of an asset with the market rate of return determines its expected return in equilibrium, while in the case where risk aversion equals intertemporal substitution ( $\gamma = \rho$ , the case of Von-Neumann preferences) the two equations reduce to the “consumption-based” capital asset pricing model.

To obtain some rough estimates of the size of risk premiums from the CAPM, I estimate average covariances of franc, lira, and mark returns on one-year Eurodeposits over the 1980s (using nonoverlapping data) with market and consumption indexes. In Giovannini and Weil’s paper, all first and second moments are conditional on information available every period. Here the calibration, instead, uses average data. The error-in-variables problem is negligible if the covariance between the time-varying first and second moments is second-order.<sup>44</sup>

Calibration of the model requires a choice between the relevant consumption and market indexes. Under the representative-agent assumption, the market index should be an average of national market indexes, and the consumption index an average of national consumptions. The indexes I chose are Capital International Perspective’s world market index and consumption growth of OECD countries.<sup>45</sup> There are, however, reasons to believe that the representative-agent assumption does not hold, because individual countries’ attitudes toward risk may not be the same. First, consumption is not highly correlated across countries, and second, as Michael Adler and Bernard Dumas point out,

43. When  $\rho = 1$  Giovannini and Weil (1990) show that covariances with consumption growth and the market rate of return are identical. Hence both the market CAPM and the consumption CAPM are true, but equations 8 and 9 are not defined.

44. From the beta-representation of expected returns, note that the conditional expected return on an asset is equal to the product of the conditional beta times the conditional expected return on the benchmark portfolio. If the time-covariance of the conditional betas and the conditional expectations of the return on the benchmark portfolio is negligible, the expectation of that product is approximately equal to the product of expectations.

45. The world market index comes from Morgan Guaranty; in it, national stock markets are aggregated using their relative capitalizations as weights. The consumption growth measure comes from the OECD’s *Main Economic Indicators*.

deviations from purchasing power parity and the law of one price indicate that the conditions for aggregation of national indexes are not met.<sup>46</sup>

Unfortunately, aggregate asset pricing equations for general models that allow heterogeneous investors are not available. For this reason, it may be helpful to explore whether the predictions of rate-of-return differentials differ significantly from one national investor to another in order to evaluate the empirical significance of specification errors. Hence, I compute equilibrium relative returns from the viewpoint of a U.K. investor (that is, I use the U.K. stock market index and the rate of growth of U.K. consumption) and a Japanese investor (using the same measures for Japan).<sup>47</sup>

Table 9 reports the results of this exercise. The top section of the table contains the average relative returns (the terms on the left-hand side of equations 8 and 9 expressed in percent) as measured from the data, together with the relevant average covariances, also from the data. The bottom section contains the implied relative expected returns from the model under a small set of parameter combinations—the case of the static CAPM ( $\gamma = 1$ ), the case of the consumption CAPM ( $\gamma = \rho = 2$  and 10, respectively), and a general case that combines high risk aversion ( $\gamma = 10$ ) with the coefficient of intertemporal substitution equal to 0.5 ( $\rho = 2$ ). The three units in the columns are, respectively, dollars, pounds, and yen.<sup>48</sup>

Except for the case of the Japanese investor, the table indicates that the average risk premiums consistent with asset pricing models tend to be smaller than those observed in the data. The models often predict higher expected returns on mark assets than on franc or lira assets. In the case of the Japanese investor, the static CAPM produces risk premiums that resemble the observed data, but a change in parameters generates very large differences between the data and the model's predictions.

I now turn to the second reason why asset pricing models are rejected: peso problems. The potential of large and rare devaluations might explain

46. Adler and Dumas (1983).

47. Columbia Center for International Business Cycle Research provided the stock market indexes. Consumption growth comes from OECD *Main Economic Indicators*.

48. While relative real returns are in principle more appropriate than nominal returns, in practice inflation uncertainty is so small relative to exchange rate uncertainty that the difference between real and nominal calibration is negligible.

Table 9. Calibration of Risk Premiums, for Investors in Selected Currencies, 1981-89<sup>a</sup>

	<i>World investor (U.S. dollar)</i>	<i>U.K. investor (pound)</i>	<i>Japanese investor (yen)</i>
<i>Sample data</i>			
Average rate-of-return differentials			
Franc	1.44	1.05	1.05
Lira	4.30	4.14	4.14
Covariance with market			
Mark	0.0200	0.0173	-0.0061
Franc	0.0192	0.0212	0.0322
Lira	0.0220	0.0211	0.0321
Covariance with consumption			
Mark	0.0005	0.0003	-0.0009
Franc	-0.0000	-0.0000	0.0010
Lira	0.0013	0.0000	0.0011
<i>Theoretical risk premiums</i>			
Static CAPM ( $\gamma = 1$ )			
Franc	-0.09	0.39	3.84
Lira	0.20	0.39	3.83
Consumption CAPM ( $\gamma = \rho = 2$ )			
Franc	-0.12	-0.06	0.38
Lira	0.15	-0.03	0.15
Consumption CAPM ( $\gamma = \rho = 10$ )			
Franc	-0.61	-0.30	1.87
Lira	0.74	-0.15	2.02
General CAPM ( $\gamma = 10, \rho = 2$ )			
Franc	-0.41	-0.62	-27.29
Lira	-0.23	-3.40	-27.00

Source: Author's own calculations using equations 8 and 9 from text. The world market index comes from Morgan Guaranty; in it, national stock markets are aggregated using their relative capitalizations as weights. The consumption growth measure comes from the OECD's *Main Economic Indicators*.

a. The table reports results for investments in French francs, Italian liras, and deutsche marks.

the evidence from table 9. The table suggests that risk premiums do not seem to account for the average rate-of-return differentials between marks, francs, and liras. Yet this evidence is not necessarily inconsistent with rational expectations. It could indicate that investors had been expecting exchange rate changes that never occurred, but that, given policymakers' objectives and constraints and the distribution of exogenous shocks to Germany, France, and Italy, changes are not to be ruled out. The presence of a "peso problem" should not significantly bias risk premiums because it should not affect covariances with the market and

consumption. The occurrence of large exchange rate changes can significantly change the covariances in equations 8–9 if those exchange rate changes are associated with large changes in either consumption, market return, or both. This is unlikely to occur if the world portfolio and the representative investor's consumption, both on which the asset pricing equation is based, are well diversified. Errors can, however, occur in small samples if the large realizations of exchange rate changes are either overrepresented or underrepresented in the sample. Since my interpretation of the evidence is that, if anything, these large exchange rate changes are underrepresented in the sample used for my computations, and since population covariances should be unaffected by their potential occurrence, my computations should be little affected by the peso problem.

Hence, the results reported in table 9 lead me to conclude that standard asset pricing models do not seem to consistently explain average excess returns on lira and franc deposits relative to deposits in marks. Theoretical risk premiums appear to be small, or, more seriously, of the opposite sign than the observed average rate-of-return differentials.

**RISK PREMIUMS WITH NONMARKETABLE RISK.** One reason why the CAPM fails empirically might be, as pointed out above, the presence of risk that cannot be efficiently diversified away in financial markets. While in the previous section I argued that, in the presence of well-diversified international portfolios, the rare and large depreciations of the lira and the franc relative to the mark should not significantly affect covariances with the market and consumption as computed in table 9, this may not occur in the presence of nonmarketable risk.

To illustrate this possibility, consider the optimization problem of an individual investor maximizing expected utility. The efficiency condition is that (at every time and conditional on the information available) the expectation of the product of the gross return on asset  $i$  and the marginal rate of substitution in consumption must equal unity:

$$(10) \quad E[\eta \tilde{R}_i] = 1,$$

where  $\eta$  is the ratio of the marginal utility of consumption at the time of the payoff of asset  $i$  to the current marginal utility of consumption. Following Weil, consider a two-period setup, where at the start of the first period all agents are identical in their endowments and risk charac-

teristics.<sup>49</sup> Their total income is the sum of a marketable and a nonmarketable component. The nonmarketable component is distributed identically across investors.<sup>50</sup> Given the definition of the risk-free rate of return,  $R^F = 1/E(\eta)$ , and the relation  $E[\eta\tilde{R}_i] = E(\eta)E(\tilde{R}_i) + \text{Cov}(\eta, \tilde{R}_i)$ , we obtain

$$(11) \quad E(\tilde{R}_i) = R^F (1 - \text{Cov}(\eta, \tilde{R}_i))$$

for any  $i$ , and thus:

$$(12) \quad \frac{E(\tilde{R}_i)}{E(\tilde{R}_j)} = \frac{1 - \text{Cov}(\eta, \tilde{R}_i)}{1 - \text{Cov}(\eta, \tilde{R}_j)}.$$

The expression within the parentheses in equation 11 is greater than 1, since  $\text{Cov}(\eta, \tilde{R}_i)$  is negative: an increase in the rate of return on an asset in the portfolio increases future consumption, and therefore decreases its marginal utility. Equations 11 and 12 are formally identical to standard asset pricing equations, like those from which equations 8 and 9 are derived. The important difference is the presence of nonmarketable risk in the marginal rate of substitution,  $\eta$ . Because of the presence of this risk, risk premiums can diverge from those in the standard asset pricing model if returns on different assets have different covariances with the marginal rate of substitution.

From the analysis above, it can be shown that the size of the theoretical risk-free rate and the empirical rate-of-return differentials is such that the covariance between the marginal rate of substitution and the rate of return on francs and liras should be about twice the size of the covariance computed assuming perfect risk pooling. However, it is difficult to find convincing reasons why large exchange rate changes should affect the covariances of franc and lira assets more than that of mark assets. The most plausible forms of nonmarketable risk in international financial markets are those relating to the problems of asymmetric information, and those arising from legal constraints on financial intermediaries.<sup>51</sup> Large exchange rate changes produce potentially large transfers of

49. See Weil (1990). If returns and nonmarketable risk were i.i.d., this model would be applicable to a multiperiod setup.

50. When all investors are alike, they all hold the same portfolio of tradable securities, which in equilibrium equals the market portfolio.

51. For problems relating to asymmetric information, see Diamond and Dybvig (1983).

wealth among financial intermediaries in the Euromarkets and can give rise to liquidity problems and bankruptcies. However, the mechanics of these liquidity crises do not depend on the specific currency composition of bank portfolios. For these reasons, the covariance of returns on lira and franc assets with the marginal utility of consumption (or with any other benchmark) should not be significantly affected by large changes in the franc-mark or lira-mark exchange rates. Therefore, the kind of nonmarketable risks that characterize international financial markets should not affect expected rates of return on deposits denominated in different currencies.

### **Real Wages and Real Interest Rates**

The evidence presented in the previous section can be summarized as follows. The past three years have been characterized by increased stability of exchange rates within the EMS: both volatility and trends in the franc-mark and lira-mark exchange rates have decreased noticeably. The decrease in inflation differentials among Germany, France, and Italy has been achieved, especially in the case of Italy, with a substantial increase in real wages and an improvement in the terms of trade. The past three years have witnessed some worsening of the competitive position of both France and Italy. Persistent interest differentials between franc, lira, and mark assets are difficult to explain by risk premiums and capital-market imperfections. And finally, the mirror image of high realized real interest rates and high real wages has been current account deficits and capital account surpluses (often more than offsetting the current account deficits) in Italy and France. In Germany, by contrast, there have been large current account surpluses matched by capital account deficits.

What underlies the persistence of real-wage and real-interest differentials at low levels of inflation well after the dramatic reduction of the inflation disparities of the mid-1980s?<sup>52</sup> This section reviews alternative explanations.

52. The problem of high real interest rates in the EMS, and its relation to the credibility of exchange rate targets, is discussed in Dornbusch (forthcoming).

### *“Pure” Wage and Price Stickiness*

The first natural candidate is the traditional wage-price stickiness story.<sup>53</sup> According to this theory, high real wages and a loss in competitiveness result from the transition to credible exchange rate targeting because only a fraction of existing prices and wages in the economy are reset every period.

The first problem with this explanation is that the new regime has been in place for some time now; the transition is presumably over. Some claim that France and Italy dramatically altered their domestic policies in response to the discipline of the EMS in the mid-1980s; others regard January 1987 as the date when these two countries pledged to forgo parity changes. The persistence of real-wage and real-interest differentials three years after the presumed change in regime is hard to square with the standard models of overlapping wage contracts. In those models, inertia lasts only for the maximum length of wage contracts.<sup>54</sup> What would then be needed is some type of protracted price stickiness of the type discussed, for example, by Olivier Blanchard.<sup>55</sup>

Even if protracted nominal sluggishness is present, however, these models still cannot explain the persistence of interest rate differentials. If the exchange rate is credibly fixed, the increase in money demand coming from the fall in inflationary expectations due to the change in regime would automatically be accommodated by balance-of-payments surpluses. The nominal interest rate need not go up.<sup>56</sup> In order to explain the observed interest rate differential, one should rely on slow adjustment in international asset markets, or risk premiums, a hypothesis that was ruled out earlier.

In the end, there are a number of reasons to believe that nominal

53. Analyses of inflation stabilization with exchange rate targeting are carried out in Cukierman (1988) and Fischer (1988). Wage and price dynamics under alternative exchange regimes are discussed in Dornbusch (1982) and Alogoskoufis (1990).

54. In addition, empirical evidence suggests that in Europe nominal wage stickiness is significantly less important than in the United States: see, for example, Sachs (1979), Branson and Rotemberg (1980), and Grubb, Jackman, and Layard (1982, 1983).

55. Blanchard (1983).

56. Of course the real interest rate in terms of domestic goods would increase. This would occur because the differential between own-good interest rates is approximately equal to the expected change in the relative price of the two goods. But the relative price of the domestic good is expected to fall as the transition period draws to a close.



stickiness may not exclusively explain the observed behavior of real interest rates and real wages in France and Italy relative to Germany. This is not to say that nominal inertia is irrelevant, but only that additional explanations may be useful.

### *Credibility Problems*

The next possible hypothesis is that the policy change lacked credibility. In order to illustrate that hypothesis, it is useful to follow Robert Barro and David Gordon's standard model of interaction between the government and the private sector.<sup>57</sup>

The model incorporates several assumptions. First, unanticipated changes in nominal exchange rates have real effects. Second, monetary authorities perceive a cost in exchange rate changes, which under a managed floating regime can represent the cost of the induced higher inflation. In a regime like the EMS, the cost could represent, together with the cost of higher inflation, the political cost of exchange rate changes. Third, there are distortions in the economy that could be corrected, even if temporarily, by exchange rate changes. The best example for European countries is the monopoly power of some trade unions. Fourth, monetary authorities can respond to events faster than the aggregate private sector. And fifth, the state of the economy is represented by the realization of an exogenous disturbance that affects the real economy. In other words, slow multiperiod adjustment of prices or wages is ruled out for the sake of tractability.

The unanticipated exchange rate changes and the exogenous disturbance affect the economy as follows:

$$(13) \quad y = (\hat{s} - \hat{s}^e) - \epsilon,$$

where  $\epsilon$  is a white noise real disturbance, and  $y$  is the departure of real income from trend.

The preference of monetary authorities is represented by the following loss function:

$$(14) \quad L = E[\hat{s}^2 + \phi(y - K)^2],$$

where the first term represents the costs of exchange rate changes, and

57. Barro and Gordon (1983a, 1983b). In this section, I closely follow the excellent treatment of these models found in Persson and Tabellini (1990).

the second term, with  $K > 0$ , represents the distortions that may be corrected by exchange rate changes.

The ability of monetary authorities to respond to events faster than the aggregate economy is captured in the assumption that monetary authorities set the rate at which the exchange rate is changed after observing  $\epsilon$ , while the private sector forms expectations on monetary policy before the realization of  $\epsilon$ . Under these assumptions, a regime of managed floating would be one where  $\hat{s}$  is the solution of the following problem:

$$(15) \quad \text{Min}[\hat{s}^2 + \phi(y - K)^2],$$

subject to

$$y = (\hat{s} - \hat{s}^e) - \epsilon, \text{ with } \hat{s}^e \text{ given.}$$

The change in the exchange rate, the equilibrium activity, and the expectations of exchange rate changes are, respectively:

$$(16) \quad \hat{s} = \phi K + \frac{\phi}{1 + \phi} \epsilon,$$

$$(17) \quad y = -\frac{1}{1 + \phi} \epsilon,$$

$$(18) \quad \hat{s}^e = \phi K.$$

These familiar results highlight the inflationary bias in a regime where the central bank is unable to commit credibly to a fixed exchange rate target.

### *Learning about the Change in Regime*

Consider now the case where national monetary authorities—for reasons that are not explicit in the model (like the desire to accelerate European integration)—abandon any attempt to correct domestic distortions with the exchange rate, and stick to the fixed exchange rate parity:  $\hat{s}$  is equal to zero independent of the state.

The private sector, not fully aware of or convinced by this change in regime, believes that the authorities could revert to the discretionary management of the exchange rate described above. The public assigns a probability  $p$  that the monetary authorities will not follow the fixed

exchange rate rule. Every period, this probability is revised optimally based on the observed behavior of the monetary authorities. That is,  $p_{t+1}$  is decreased if  $\hat{s}_t = 0$ . The expectation of the exchange rate change is thus:

$$(19) \quad \hat{s}^e = p\hat{s}^{e,d},$$

where  $\hat{s}^{e,d}$  is the expectation of the depreciation of the exchange rate when the authorities follow discretionary exchange rate management. Assuming rational expectations,  $\hat{s}^{e,d}$  is formed using the knowledge of the authorities' incentives, which are embodied in the first-order condition for the constrained minimization in equation 15. Thus,

$$(20) \quad E[\hat{s}^e + \phi(\hat{s}^e - p\hat{s}^{e,d} - \epsilon - K)] = 0.$$

This implies:

$$\hat{s}^{e,d} = \frac{1}{1 - \phi(1 - p)} \phi K,$$

$$\hat{s}^e = \frac{p}{1 - \phi(1 - p)} \phi K.$$

If the authorities adhere to the exchange rate parity,  $p$  is progressively decreased until it reaches zero. The transition, however, is characterized by a series of prediction errors. This generates data resembling the phenomena described above.

Consider interest rate differentials. Equation 3 indicates that realized interest rate differentials could be high, even if expected real-interest differentials were zero. Negative exchange rate surprises also depress economic activity:

$$y = -\hat{s}^e - \epsilon = -\frac{p}{1 - \phi(1 - p)} \phi K - \epsilon.$$

The intuition behind this result can be provided by the evidence on real-wage differentials. Wages are set with an expectation of a positive exchange rate depreciation. If the exchange rate depreciation is not realized, the loss in competitiveness is reflected in a fall in economic activity.

The model of slow adjustment of expectations raises two questions. The first regards the speed of adjustment of expectations. The model predicts that expectations of exchange rate changes would asymptoti-

cally converge to zero. This convergence has not occurred in countries like France and, especially, Italy. More strikingly, this convergence does not seem to occur in countries with an experience of much more stable exchange rates.

The case of Austria provides an interesting example. Until the early 1970s the schilling and the mark were tied together by the Bretton Woods system: both currencies were pegged to the dollar (hence the March 1961 revaluation of the mark was reflected in a devaluation of the schilling). With the collapse of the Bretton Woods regime, the schilling was pegged to a basket of currencies, in which the mark gained an increasing weight. Finally, in 1981 the schilling was tied to the mark exclusively. The only sizable change in the schilling-mark exchange rate occurred at the end of 1969, when the price of the mark increased progressively from about 6.5 to around 7.0 (a depreciation of 7.5 percent). In contrast to the franc and the lira, the schilling has kept remarkably stable relative to the mark throughout the 1980s.

In the years after 1986, the period for which reliable data are available, Austrian short-term interest rates exceeded German short-term rates by an average of about 50 basis points. The experience of the Netherlands, a member of the EMS that has kept its currency and monetary policy tightly linked to Germany's, broadly matches the evidence for Austria.

Transactions costs and liquidity premiums are important in explaining these small interest rate differentials; for this reason, it is more difficult to identify expectations of exchange rate changes. Yet, this evidence raises the possibility that governments' commitment to a given parity may be less than fully credible, even in the long run. After all, the fact that different currencies are maintained reflects the governments' right to change their currencies' value. Given that exchange rate changes have real effects, governments may be reluctant to give up this instrument.

### *Exchange Rate Changes as "Escape Clauses"*

An alternative to the "learning" model presented above is a model where the public is aware that there will always be instances when the monetary authorities will want to use the exchange rate.<sup>58</sup>

58. This model has been recently developed by Flood and Isard (1989). Also see Cukierman (1990) for a discussion applied to the Delors plan.

Here the government's strategy is a mixture of fixing the exchange rate ( $\delta = 0$ ) and discretionary policy. For this reason, the model is labeled "escape clause." Discretionary policy is chosen whenever the exogenous shock  $\epsilon$  exceeds a given range. The public fully understands this and bases its own expectations about the government's behavior on the probability of large realizations of  $\epsilon$ , the instances when the escape clause will be invoked. Given that  $\epsilon$  is serially independent, these probabilities are constant.

The solution of this model is formally identical to that of the learning model, except that now  $p$  is constant and represents the probability that  $\epsilon$  lies beyond the "normal" range. Hence, as long as  $\epsilon$  remains in the normal range there will be high realized real interest rates and high real wages. When the large realizations of  $\epsilon$  occur, the government's discretionary exchange rate changes will be more effective, because the public will be more surprised than under a managed exchange rate regime. Thus, it can be easily shown that there are parameter values such that this strategy would be preferred by the government to both fixed exchange rates and managed floating.<sup>59</sup> The mixed strategy is thus credible.<sup>60</sup>

### *Extensions and Implications*

An important difference between these models and reality is that the state of the economy is not serially independent. Because of the sluggishness of prices and wages, and the slow response of employment to real wages, the loss in competitiveness gradually builds up. In other words, for a given stream of realizations of the exogenous disturbance, the incentives to change the exchange rate increase, since the losses in competitiveness due to past increases in prices remain. In the model discussed above, the losses in competitiveness do not linger; rather they result in an immediate fall in economic activity.

An extension of the model to deal formally with these issues is beyond the scope of this paper. My guess is that the escape clause equilibrium, if it is at all viable, may be subject to more frequent exchange rate

59. See Flood and Isard (1989); Persson and Tabellini (1990).

60. Another virtue of the "escape clause" model is that it could be sustained in a multi-period setting, where this game resembles the one studied by Rotemberg and Saloner (1986).

realignments and larger biases of realized real interest rates when the realignments do not occur. An additional, more manageable extension of the model mixes the learning and the escape clause parables. Elements of both stories seem relevant to the European experience: the public is not sure how serious the commitment is to monetary convergence and might revise its views as years go by; yet, there is always a belief that governments may use the exchange rate under extreme circumstances. Even the probability that the government might resort to exchange rate changes may be subject to revision.

An interesting feature of the above analysis extends the theory of optimum currency areas. A regime of fixed exchange rates with separate currencies is not equivalent to a single currency, because the public understands that the monetary authorities may use exchange rates to correct distortions. This awareness leads to biases on rates of return to productive factors, for which the welfare effects are estimable.

A calculation of the welfare effects of the interest rate distortions should take uncertainty into account, and in particular the fact that in the escape clause model large realizations of the exogenous shock occasionally occur. Two types of effects should be relevant in this calculation. First, the long-run rate of return might be tied down, either by a modified golden-rule condition, or, in the case of a small open economy, by the world rate of interest. In this case, the wedges discussed here may have large welfare effects, similar to those arising from taxing savings. And second, when uncertainty is accounted for, a more precise estimate of the investment distortion is possible.

### **Transition to Monetary Union**

This section examines the current policy debate in the light of the evidence presented above and its possible interpretations. What follows, however, is necessarily an attempt to take only a snapshot of the diplomatic exchanges that have accelerated in the very recent past. The speedup may be due to the December 1990 intergovernmental conference, which will seek changes in the Treaty of Rome allowing for the creation of a common European central bank.

In this section, I discuss the feasibility—and indeed the desirability—of gradualism as a strategy to achieve a monetary union. Next I turn to the perceived problems hindering further progress of the monetary union: the budgetary and debt problems and the question of a “two

speed'' EMU, with a core group of countries moving toward a single currency before the rest of the EC. Finally, I describe the likely positions of the major negotiators at the intergovernmental conference.

### *Can Gradualism Work?*

I have presented evidence that exchange rate targets in the EMS are still not fully credible. This lack of credibility is the curse of gradualism. I have also shown that, if the incentives to change exchange rates remain intact, expectations of change will persist. The question then is whether the Delors plan has significantly affected the incentives for France and Italy to devalue their currencies relative to the mark. These incentives combine the real effects of surprise realignments and the political and economic costs of these realignments.

Some observers believe that the political costs of devaluations, as perceived by French and Italian authorities, are higher now than they were five years ago. This might well reflect these two countries' greater political enthusiasm for an integrated European economy with a single currency. The resistance of other EC partners, as well as problems raised by external economic shocks, may, however, lower the perceived political costs of exchange rate changes. The intrinsic dynamics of wages and prices can also lower the perceived costs of devaluation, because exchange rate misalignments build up in the absence of full convergence of inflation rates. Finally, the present institutional setting further justifies the lack of credibility of exchange rate targets. Nothing prevents monetary authorities from using changes in bilateral parities to accommodate price imbalances. Indeed, the Delors report views this strategy as acceptable—even desirable (at least according to the interpretation of this plan by German authorities)—in the transition, since it allows exchange rate realignments during stage one, and possibly even during stage two.

The model discussed previously implies that, when exchange rate targets are not fully credible, convergence can never be complete.<sup>61</sup> For

61. The model shows that nominal interest rates will never converge. In the model, the rate of inflation does not appear, but it is reasonable to assume that price inflation is equal to  $\delta$ , whereas wage inflation is equal to  $\delta^e$ . Therefore price inflation converges, but wage inflation does not: the result is a fall in economic activity. The general lesson is that, in the absence of exchange rate adjustments, inflation rate differentials may persist for prolonged periods before the disruptions brought to the external balance and employment lower real wages.

this reason, it is unlikely that monetary authorities would be able to maintain exchange rate targets throughout the whole adjustment period. Thus, gradualism fails. The elimination of small inflation rate differentials seems a faulty criterion to guide a monetary reform. The stubbornness of small inflation differentials prevents monetary authorities from deciding when maximum inflation convergence is reached.

These observations are based on the implicit assumption that real shocks are absent. Under this assumption, and absent the nonneutralities arising from credibility problems under fixed exchange rates, all relative prices between the low- and the high-inflation countries would be equal to unity. Indeed, this implicit assumption provides the benchmark for the inflation-convergence criterion. In reality, however, real shocks are present, and therefore the criterion of inflation convergence becomes even less reliable, because it requires the knowledge of equilibrium relative prices. The difficulties in computing equilibrium relative prices arise from the well-known uncertainties about the relevant economic model and its parameters, discussed, for example, by Jeffrey Frankel.<sup>62</sup>

In conclusion, economic theory suggests that gradualism is not an effective strategy for monetary reform. The recent increase in the price of oil will almost surely bring the weakness of gradualism into the open. First, the increase in the price of oil is a real shock, and EC countries may believe it is necessary to allow intra-European real exchange rates to change. This implies giving up the twin objectives of exchange rate stability and inflation rate convergence. In addition, the increase in the price of oil will affect inflation and inflationary expectations. Calculations that I performed with Francesco Giavazzi using 1980 input–output tables show that the aggregate effect of a 10 percent increase in the price of energy products ranges from 1.3 percent in France to 1.9 percent in the Netherlands when constant nominal wages are assumed and all other prices are allowed to adjust. The effect ranges from 6.6 percent in the Netherlands to 7.2 percent in Germany and the United Kingdom when constant real wages are assumed for all the countries.<sup>63</sup> These numbers take into account the effects of intra-European input–output interactions. They indicate that the structure of production in EC countries does not necessarily disadvantage the “high-inflation” countries. However, the

62. Frankel (1988).

63. Giavazzi and Giovannini (1987).



large differences between constant nominal wage and constant real wage simulations suggest that, despite the technological homogeneity of European economies, an energy shock can have large destabilizing effects if it affects price-setters' expectations unevenly.<sup>64</sup>

The pitfalls of the gradualist approach lend support to the alternative "monetarist" strategy. The monetarist strategy calls for a sudden and permanent change in the monetary regime. Elsewhere I have argued that the best way to achieve a monetary union, once the common monetary authority is in place, is through currency reform.<sup>65</sup> Currency reform is a replacement of national currencies either by a single currency or by new national currencies that exchange at parity (one mark equals one franc, equals one lira, and so on).<sup>66</sup> This reform is carried out over a specified period of time, during which residents of each country swap old banknotes for new banknotes at a prespecified rate. Bank accounts are automatically converted. As a result, the stock of money in circulation is unaffected. During the same period, all outstanding assets and liabilities in the economy have to be recalculated, requiring considerable expense: all accounting and control systems—both private and public—have to be translated.

While the two alternatives (one-to-one exchange rates versus a single currency) produce the same effect on prices (aligning nominal prices of all goods in the EC), they are not exactly equivalent for two reasons. On one hand, some countries might be unwilling to give up their national currency's name and symbol in exchange for a single currency, perhaps the ECU. These countries may find it more desirable to change the units in which their national currencies are denominated. On the other hand, the persistence of banknotes with the old names and symbols might make the currency of those countries with previously high inflation somewhat less desirable, especially in retail transactions. A compromise solution would be to print new banknotes with the ECU name together with the names of all the currencies in the monetary union.

The advantages of currency reform are many. First, the abolition of exchange rates eliminates the distortions arising from expectations of

64. These calculations do not account for the impact of the oil price increase on wealth and aggregate demand.

65. Giovannini (1990).

66. Triffin (1960) advocated a reform that locked intra-European exchange rates at parity.

exchange rate changes. Second, a currency reform solves unit-of-account problems, by cutting down on the calculations necessary to translate prices in different currencies—with  $N$  currencies, the number of relevant bilateral exchange rates is  $(N^2/2) - (N/2)$ .<sup>67</sup> Third, it allows final adjustments of exchange rates without inducing any changes in inflationary expectations. Finally, and most importantly, it is the only reform that is fully credible, since it does not allow reversals to the old regime.

However, a currency reform is a politically costly undertaking because it requires the full and immediate commitment of all countries that decide to join; it forces the setup of a common European central bank and the settlement of issues related to the bank's management, accountability, and tasks.<sup>68</sup>

### *Obstacles to a Currency Reform*

The sensible strategy for monetary union is a currency reform. This proposal, however, faces two important obstacles. The first is the creation of a common central bank that is independent of national fiscal authorities and can carry out its own objectives without undue pressure or influence from national governments. The second obstacle is the question of participation in the monetary union.

One source of pressure on a European central bank that has been frequently debated in the past year is the divergent fiscal stances of the individual countries. Table 10 shows debt-GNP ratios for EC countries. The table highlights the nature of the divergences. Differences in debt-GNP ratios induce large differences in interest spending, and even with similar primary balances, differences in net borrowing. Thus, high-debt governments are forced to turn to financial markets both to roll over large stocks of debt and, typically, to finance larger current deficits.

The data in table 10 raise two questions. Can a monetary union function without a central fiscal authority? What threats do independent fiscal authorities present to the successful functioning of a European central bank?

67. The advantages of a single currency are discussed in detail by Ernst & Young (1990) and Gros and Thygesen (1990).

68. For a discussion of the problems of ensuring the independence of a European central bank, see Neumann (1990).

**Table 10. Debt-GNP Ratios, EC Countries, 1989**

Ratio

<i>Country</i>	<i>Debt-GNP ratio</i>
Belgium	127
France	35
Germany	43
Italy	99
Netherlands	78
United Kingdom	44
EC12	58

Source: Estimates from Bishop (1990, p. 2).

The first question is raised by those who regard central banks as fiscal agencies of the government, charged with managing the government debt, either by selling securities to the market or by purchasing government securities directly in exchange for high-powered money. Over the years, central banking has progressively moved away from these functions, for which the private banking sector is perfectly equipped. Now central banks are concerned about the soundness of financial intermediaries, the stability of interest rates and the exchange rate, and the control of inflation.<sup>69</sup> Another concern about fiscal authority regards the optimum-currency-area trade-off between monetary and fiscal policy stressed, for example, by Peter Kenen.<sup>70</sup> The creation of a single currency area might allow a centralized fiscal authority to redistribute income in response to region-specific shocks.<sup>71</sup> The current policy sentiment, especially in the EC countries, is that a centralized and permanent system of income transfers may be plagued by inefficiencies. Financial intermediaries and development banks, perhaps under the explicit direction of national governments, are probably better suited for identifying the relevant development opportunities, for selecting the most socially efficient projects, and for monitoring their progress.

The second question raised by the current structure of fiscal authority and its divergent imbalances regards the spillover of national fiscal

69. See Goodhart (1988) for a historical and comparative perspective on the evolution of central banking. Goodhart stresses the role of central banks as public insurers of systemic risk, and traces it back to the birth of the Bank of England. Barro (1989) discusses the concerns of central banks with interest rate stability.

70. Kenen (1969).

71. See Sachs and Sala y Martin (1989) for evidence on the United States.

shocks into the whole Community, and the effect these spillovers have on the operations of a common central bank.<sup>72</sup> Three types of spillovers are relevant in this case. The first is the traditional Keynesian spillover, associated with the export of crowding out in a region characterized by integrated financial markets and a single currency. The bias in this case is expansionary, and the effects are an increase in the real interest rate and an appreciation of the region's real exchange rate relative to the rest of the world. Hence, the pressure on a central bank would be to offset these biases through monetary expansion.<sup>73</sup> The second type of spillover comes from distortionary taxation in the presence of increased mobility of goods and factors within the area. Uncoordinated tax policies lead to tax competition and undertaxation of the mobile factors with adverse effects on national budgets. If national governments are unable either to decrease spending or to increase taxation of the immobile factors by the required amounts, tax competition increases the net borrowing of national governments and may force the common central bank to monetize part of the deficits. In addition, higher government borrowing increases the stock of government debt. The third type of spillover is related to the dynamics of debt and deficits and to the systemic effects of funding crises of individual governments. In countries with large stocks of debt, questions are raised about the ability of the national government to adhere to its intertemporal budget constraints without debt repudiation or other forms of extraordinary taxation. The impact of these crises on financial markets may be quite significant, especially if the *absolute* size of the government debt is large. The common central bank may be led to inject liquidity into financial markets in order to avoid the negative effects of a systemic crisis associated with multiple collapses of financial intermediaries.

Spillovers of the first kind are not quantifiable, since the relevant transmission is the one from *national* saving rates to the real exchange rate and the real interest rate. As Laurence Kotlikoff convincingly argues, it is not possible to establish a reliable link between government

72. See Cohen and Wyplosz (1989) and Buiter and Kletzer (forthcoming) for discussions of externalities associated with noncooperative fiscal policies.

73. Alternatively, some central bankers would find it more appropriate to offset the aggregate spending biases by monetary contraction, which would further increase interest rates.

savings, as measured by the government budget, and national savings.<sup>74</sup> Spillovers of the second kind deserve more careful consideration, although to date there are no reliable numbers on the impact of the single market on tax revenue (assuming no change in national tax structures and policies). At the same time, the Community has practically abandoned attempts to comprehensively overhaul tax coordination. Concerns about the ability of countries like Italy to stabilize their debt-GDP ratios makes spillovers of the third kind the most significant and the most urgent.

The attitudes of official institutions toward the coordination of national fiscal authorities with the common central bank mix concerns about stability in the transition—that is, the presence of incentives to depreciate currencies during the transition—and concerns about the operation of the monetary union. The Delors report considers convergence of fiscal deficits a crucial condition for monetary union and advocates concerted budgetary actions during stage one including the development of “quantitative guidelines and medium-term orientations.” In the second stage, the report calls for “precise, although not yet binding” rules that relate to the size of budget deficits and their financing. In the third stage, budgetary rules would become binding. The EC document on economic and monetary union advocates the adoption of “binding procedures,” whereby member states submit rules or guidelines for their budgetary laws during the transition, the adequacy of which would be discussed at the Community level.<sup>75</sup> In the final stage, the Community proposes monitoring, adjusting, and enforcing through peer pressure. Finally, the EC Monetary Committee spells out even in greater detail “principles of sound budgetary policies,” which include the elimination of governments’ access to direct financing by central banks, no cross-government “bail out” rules, and the correction of excessive deficits, together with, if possible, incorporation of criteria to determine acceptable levels of budget deficits into the Treaty of Rome.<sup>76</sup>

It is not clear which specific externalities would be corrected by the

74. Kotlikoff (1988, 1990). A regression of national saving rates over the 1980–84 period in the EC countries over government saving rates yields a coefficient of 0.18 (standard error 0.31). The coefficient for the period 1985–89 is 0.17 (standard error 0.27).

75. European Commission (1990).

76. EC Monetary Committee (1990).

proposed rules, especially the rules relating to ceilings on national budget deficits. These rules have been criticized on the grounds that budgetary ceilings may eliminate the flexibility that national governments need to offset regional shocks in the monetary union (given the loss of monetary control).<sup>77</sup> In the case of the United States, budget rules such as Gramm-Rudman-Hollings have led to a proliferation of artificial accounting devices with little substantial deficit reduction achieved. Furthermore, it is difficult to develop credible sanctions against countries that break the rules. More importantly, none of the proposed rules directly attacks the most serious threat to the stability of a fledgling European monetary union: the occurrence of debt crises. In principle, a more satisfactory solution to the problem of ensuring the minimization of the risks of debt crises, while at the same time avoiding a slowdown of the monetary union, would have been the definition of fiscal preconditions for countries to join the union. These preconditions could include requirements to stabilize convincingly—or at least reduce—the debt-GDP ratio before joining the union. These preconditions are politically costly, however, both for the countries “in trouble” and for the “virtuous” countries, which tend to resist accelerations in the progress toward monetary union. The former would have to engineer large fiscal stabilizations fast, without the option of delaying adjustment or the hope of exporting the political costs of the adjustment to the rest of Europe. The latter would have to proceed immediately to the next step of the union, either together with the countries that have completed the fiscal stabilization, or without them.

These observations highlight the second important obstacle to the currency reform—the question of participation in the monetary union, or the “two-speed” EMU. The Delors report does not impose the constraint of full participation on all stages of the monetary union, yet the importance of this reform is such that several governments have expressed uneasiness with informal proposals of having the monetary union begin with a small number of EC countries that would increase progressively. These proposals have been prompted by the observations of the sizable inflation differentials between Germany and, say, Greece and Portugal, or the apparent difficulties that Spain and Italy are having keeping their inflation rates low without losing external competitiveness.

77. See especially Buiters and Kletzer (1990).

The debate on a “two-speed” EMU has been similar to the debate on fiscal policy problems. In both cases the concern was that the “weak” countries would impart an inflationary bias on the union’s central bank. If the cause of higher inflation is fiscal policy, the discussion above applies. By contrast, if the source of high inflation is simply the monetary authorities’ lack of credibility, it is unclear that a monetary union would seriously damage the “hard core” countries, except when the public perceives that the reputation of the new European central bank is a weighted average of the reputation of the central banks of its member countries. Concern by the low-inflation countries about these risks, as well as resistance by the high-inflation countries to any project aimed at speeding up the monetary union for only a subset of the European Community, are additional reasons to delay the monetary reform.<sup>78</sup>

#### *December 1990 Intergovernmental Conference*

On October 8, the U.K. government decided that the pound should join the EMS.<sup>79</sup> Despite a long series of official statements that the pound would join the EMS only when the U.K. rate of inflation converged with that of Germany (the current differential is about 6 percent), this decision has not surprised those who expected the United Kingdom to ensure itself a crucial role at the intergovernmental conference. The entry of the United Kingdom into the active negotiations on EMU will crucially determine their outcome. The British position on EMU could become the swing factor in the collective decisions, since that country is the natural ally of neither the “monetarists” nor the “economists.”

The two extremes of the political spectrum toward EMU are represented by Germany—the “economist”—and France and Italy together with Belgium—the “monetarists.” The latter countries favor steady progress of monetary union and, with the possible exception of France, would not oppose the idea of a currency reform. They support the concept of an independent central bank modeled after the Bundesbank

78. The outright opposition to the idea of a “two speed” monetary union by the high-inflation countries (see, for example, “Spain Counts Cost of Joining the Club,” *Financial Times*, June 20, 1990) stems from the perception that the reputation cost of being left behind is very high, and its political effects might be equally serious.

79. The fluctuation bands chosen by the U.K. government are 6 percent on both sides of central parties.

and the Federal Reserve System. They acknowledge the important role of the EMS in their own disinflation experience.

On the other end of the spectrum, Germany is the champion of the “economist” view on monetary union.<sup>80</sup> It strongly resists initiatives that might accelerate the process. It fully believes that, with the appropriate adjustment, inflation and inflationary expectations can fully converge. It regards the convergence of inflationary expectations an absolute precondition for embarking on the next stages of the monetary union.

It is very difficult to determine where the United Kingdom fits into this picture. Britain has consistently opposed all recent initiatives to increase economic integration in Europe, including the completion of the single market, the EMU, and the intergovernmental conference. The U.K. rationale is well explained by the following interpretation of Prime Minister Thatcher’s thought:

. . . But part of this function [of the Conservative Party] is “external vigilance as a condition of our liberty,” and, as she [Thatcher] has also trenchantly indicated—the Government has not laboured arduously since 1979 to eject socialism in the UK only to find it entering through the back-door via Brussels; thus any intention that the European Commission’s writ should extend to the minutiae of economic and social policies must be firmly rejected.<sup>81</sup>

The position of the U.K. government is a blend of a vigorous anti-regulation and antisocialist sentiment with a strong desire to preserve national sovereignty and national identity.<sup>82</sup>

The special position of the U.K. government makes its contributions to the discussion on EMU somewhat orthogonal to the rest of the debate. The U.K. Treasury presented two related proposals in 1989 and 1990. The first called for an “evolutionary” approach to monetary union that would exploit to the maximum the virtues of competition.<sup>83</sup> According to this proposal, the best way to manage the transition to monetary union is to remove all obstacles that prevent private agents from effectively diversifying their currency portfolios. The effects of deregulation would be to increase the pressures on “deviating” monetary authorities and force convergence to the “best” regime, characterized by stable pur-

80. For an excellent exposition of the position of German monetary authorities, see Deutsche Bundesbank (1990).

81. Minford (1989).

82. Spaventa (1990) and Wolf (1989) provide two useful discussions of the political aspects of the debate on EMU.

83. HM Treasury (1989).



chasing power and an efficient payments system. The Treasury document suggested that the move to a single currency could happen as a result of “natural evolution” resembling the law of the survival of the fittest.

More recently, the U.K. government has circulated a follow-up to the 1989 document stressing the need to give independent status to the ECU. For this reason, the latest proposal is sometimes labeled the “hard ECU” proposal. This proposal is aimed at ensuring that, if the markets decide to adopt a single currency, it will be the ECU.<sup>84</sup>

Thus, on the issue of the relevant horizon for EMU, it is difficult to see the United Kingdom becoming an ally of Italy, France, and Belgium given its opposition to government-directed monetary reform. It is also difficult to see the United Kingdom as an ally of Germany since that would imply an acceptance of the EMS status quo, which is characterized by a distribution of monetary sovereignty biased in favor of Germany’s monetary authorities. In sum, the divergent positions of the EC governments at the start of the intergovernmental conference do not provide clear signals about its outcome. While there is always the possibility of a diplomatic breakthrough, it seems that the conference is not likely to provide much additional impetus to a monetary union among EC countries.

### **Concluding Remarks**

This paper has discussed the problem of monetary reform in Europe. The current initiative of EC countries to move toward a single currency is similar to the Werner plan, discussed and approved in 1970. That plan was quickly discarded in the face of an exogenous shock: international capital flows toward the mark in anticipation of a collapse of the Bretton Woods system. Twenty years later, a second plan for monetary union is

84. HM Treasury (1990). While it is not the purpose of this section to analyze the theoretical underpinnings of the different countries’ views, it might be useful to point out that the circulation of the ECU in parallel to national currencies—even with all the features that are proposed to ensure the stability of its purchasing power—does not necessarily induce its adoption as the single European currency. This question hinges on the existence of multiple equilibria in an economy of competing currencies. The “thick market” externalities associated with the use of a widely circulating medium of exchange can generate many self-sustaining equilibria, and it is not clear what it takes to move from one to the other.

challenged by another exogenous shock: the increase in the price of oil caused by the invasion of Kuwait and the tension in the Gulf area. The results of my analysis suggest that the gradualist strategy lacks credibility and thus may be hard to maintain.

Partly because of the oil shock, the European currency reform has now reached a deadlock. The strategy currently pursued, gradualism, can mask a lack of commitment by national governments and is therefore less than fully credible. The alternative strategy, currency reform, requires the solution of difficult political problems that include the creation of a multinational central bank and the substitution of national currency with a new money at unfamiliar exchange rates. In the absence of strong political leadership, currency reform is unlikely in the near future. The current halfway house, characterized by complete capital mobility, tight exchange rate targets, and lack of institutional coordination of national monetary authorities, could easily collapse.

The recurrence of similar difficulties twenty years after the failure of the Werner plan highlights the basic problem faced by European countries with respect to currency reform: they understand and seek the benefits of a single currency, but sudden reform poses considerable political difficulties and large adjustment costs. As a result, they tend to adopt gradualist strategies that are likely to be self-defeating.

## *Comments and Discussion*

**Richard N. Cooper:** Alberto Giovannini has really written two papers: a long and interesting interpretive paper on continuing interest rate differentials in Europe, and a relatively brief paper on the prospects and problems of European monetary unification. I will first make a relatively brief remark on the longer part of the paper and then a longer remark on the shorter part of the paper.

In the more developed part of the paper, Giovannini rejects several hypotheses about the persistent differences in interest rates between France and Italy, on the one hand, and Germany, on the other. Instead, he favors the hypothesis that these differentials result from exchange risk—the “escape clause” embodied in the possibility of future changes in central exchange rates.

I suspect that he is right. It is worthwhile, however, to examine several possible sources of the difference, only some of which Giovannini discusses. I have four in mind: credit risk, liquidity risk, exchange risk, and tax differences. Giovannini discusses exchange risk at length. His reason for excluding credit risk and differences in tax treatment may be that he draws mainly on the Eurocurrency interest rates, a market in which the participants are presumably subject to the same tax treatment. The same major banks are assumed to engage in Euro-lira, Euro-franc, and Euro-mark transactions. While that is probably true, some verification would be useful because substantial differentials have opened up the market perceptions of the credit risk associated with particular banks, even the biggest banks. For example, if a few banks dominate the Euro-lira market, there may be an element of credit risk. Similarly, countries follow different practices regarding taxation of overseas income. One could use some assurance that these differences are not affecting Euromarket interest rates in different currencies.

Giovannini has likely underrated the influence of market liquidity on interest rates. U.S. Treasury bills command a premium because of the tremendous liquidity of that market. Thus, Euro-marks have probably enjoyed some liquidity premium compared with Euro-francs and Euro-liras.

Incidentally, that possibility suggests a test. I suspect that the Euro-franc market was relatively thin during the period of Giovannini's estimations. In periods of crisis, substantial short-run differentials have opened up between the Paris and London markets in francs, a differential that can only be explained by the short-run effectiveness of exchange controls. However, France's residual exchange controls were eliminated in 1990. With that move, the Euro-franc market has presumably become more liquid. If the liquidity hypothesis has some merit, one should see a narrowing of the interest rate differentials from mid-1990.

It is sometimes useful, in the context of the current European debate, to look at the experience of the United States. This country has, after all, 50 sovereign and relatively independent jurisdictions, all subject to a common market environment.

To measure exchange risk, one might ask what the typical differentials on short-run notes of U.S. states have been in the absence of exchange risk but in the presence of credit risks and liquidity effects. A series of pairwise comparisons suggests that interest differentials across states—at any given time, for notes of comparable credit risk and maturity, all one year or less—are normally in the range of 10 to 35 basis points, but with occasional observations running up to a maximum of 95 basis points, in the absence of exchange risk.

That information suggests that Giovannini may not be correct in his interpretation of the Austrian schilling–deutsche mark differential, which typically is 50 basis points. This may reflect a liquidity premium on the mark, as against the schilling, rather than an escape-clause exchange risk on the Austrian schilling.

U.S. experience, however, cannot explain the differentials of several hundred basis points between the franc and the lira, on one hand, and the mark, on the other. Giovannini is probably correct in interpreting those as predominantly exchange risk.

Let me turn now to the larger questions of European monetary unification. Giovannini simply assumes that monetary unification will go forward; or, rather, he reports that everyone else assumes it. He

raises the question whether it will proceed slowly or rapidly, with the strong suggestion that rapid is better. Indeed, slow may undermine the process.

If so, then why has movement been so slow? An answer is especially pertinent since in my view the technical conditions for a common currency—meaning a reasonably efficient international capital market—have existed since the time of the Werner plan in the early 1970s.

Three obstacles have impeded more rapid progress. The first is a psychological one, the question of sovereignty. People are reluctant to give it up. It is a reluctance based on a misunderstanding because no sovereignty is given up. But, as European Vice President Christofferson noted in late 1989 after the Bundesbank raised its discount rate, the other central banks of Europe had about 45 minutes of sovereignty, by which he really meant freedom of action. It is an exercise of sovereignty, not a derogation of sovereignty, to execute agreements with other sovereign nations.

A much more important obstacle to currency unification in Europe is that the debate over a common currency has become a surrogate for the debate over a united Europe. For the last 40 years an influential minority of Europeans has aspired to create a United States of Europe. That debate was very active in the 1950s, became quiescent during the 1970s, and has come back again in the late 1980s as an explicit, open part of the agenda.

The creation of the Common Market with its common agricultural policy was seen as the first step, at least after the failure of the European defense community, in the early 1950s. The next logical step is seen to be the creation of a common currency, followed, in view of the rapid changes that have taken place in Eastern Europe, by new attempts to create a common European defense.

There is major disagreement over whether a United States of Europe is a desirable objective. Unhappily, much opposition to European currency unification is generated by those who are opposed to a United States of Europe. They see a currency union as the next step of those who favor such a federation and they react by blocking further entrance of the camel into the tent.

These are, however, entirely separable issues. It is quite possible to have a common currency without having a United States of Europe. A common currency involves a transnational mechanism for determining

common monetary policy. The Federal Reserve System provides an interesting model, allowing for suitable changes to ensure the continuing existence of sovereign nation states.

We have had several examples: the Latin Monetary Union in the nineteenth century, the Belgium-Luxembourg union today, and two current African currency unions containing seven and eight sovereign states respectively; each union has a common currency. Thus, it is quite possible to separate these two issues. It would be useful to focus on the debate over a European currency union and not let those issues get confused with the issue of whether there should be a United States of Europe.

The technical debate surrounding common currencies hinges on weighing the disturbances that movable exchange rates create for a common market in goods, services, and capital against the advantages they confer in helping adjust to various kinds of shocks.

As a profession, economics has laid great weight on the second item in that pair of issues and inadequate weight on the first. In my view, currency uncertainty prevents realization of the full benefits of a common market in goods, services, and capital. The importance of the exchange rate for adjustment obviously depends on the nature of the disturbances, and, in particular, on whether changes in an exchange rate are useful in minimizing the costs of adjusting to them.

Most economists, I believe, support the use of exchange rate changes as a mechanism of adjustment, but I am troubled by the fact that they do not typically carry the logic of that position to the breakup of existing currency areas where exactly the same underlying reasoning could be applied. I have not heard serious argument that the 12 different dollars that we have in the United States—one from each Federal Reserve district—should be allowed to float against one another or that the Hamburg mark should be allowed to float against the Bavarian mark, even though during the 1980s a case could be made for either of these radical changes.

What are the disturbances that affect entire national economies? Giovannini gives us one example. He shows that a world oil shock has remarkably similar effects in all European countries. That surprised me because I would have thought Britain was a sufficiently large oil exporter that the income effect of a substantial increase in oil prices would show

up in the figures. It makes me wonder whether his calculation took the income effect, as opposed to the relative price effects, into account.

Anyway, I would suggest that the result generally holds for other worldwide supply shocks also, with the possible exception of the United Kingdom and oil. The European economies do not differ much and, therefore, exchange rate movements among them are not terribly useful in dealing with external supply shocks.

A second possible disturbance, namely monetary shocks, would be precluded by the absence of different central bank policies.

A third potential source of disturbance—autonomous wage settlements—raises the practical question of whether the competitive pressures of the Common Market provide enough market discipline with regard to wage settlements to prevent radical differences in national wage settlements. In the presence of such differences, changes in exchange rates might offer a useful adjustment mechanism. In a number of European countries, unions are much weaker than they once were, but I do not have much more specific information on the current strength and influence of labor organizations.

Finally, there are possible fiscal shocks. It is not accidental that much of the argument for tighter fiscal discipline has been put forward by central bankers and their fellow travelers, because they see fiscal policy as a major potential source of disturbance.

In my view, only one general rule is necessary, namely that governments not be able to turn to the central bank for financing. A common currency implies a common monetary policy. Members can share the seigniorage on some formula, but every government has to go to the capital market to finance its deficit. If the capital market is as good as I believe it is, that should be sufficient. The capital market exerts what I would call environmental pressure on fiscal policies, while, at the same time, preserving some freedom of action for national governments.

Indeed, it is useful in a common currency area to have some freedom of action on the fiscal side. The tight fiscal rules that have been proposed, and that are reflected to some extent in the Delors report, are neither necessary nor desirable. They are simply a stumbling block in the move toward common currency.

Again, it is useful to draw on the experience of the United States. It is true that 49 of the 50 jurisdictions, Vermont being the exception, have

some kind of budget-balancing rules. But a close look at those rules—this is one of those instances in which the fine print becomes very important—reveals that in 13 states the rule simply says the governor must submit a balanced budget to the legislature.

Thirty-six states have some other budget-balancing rule. But sales of securities in the capital market count as receipts, so states can balance budgets by selling securities. Only 16 states have rules limiting outstanding debt, a few of which are very tight. Ohio, for example, has a limit on outstanding public debt of \$1 million. But most states have rather generous rules on outstanding debt. So, while in fact most states have some formal budgetary rules, they do not seem to be very binding.

At the same time, we do not see an active pursuit of Keynesian-type fiscal policy by the states. The reason is that the states are so open that the leverage of fiscal policy on local activity is relatively limited unless the expenditure is focused on particular public works projects, which it tends to be.

The surrogate of fiscal policy in the U.S. states is reliance on the highly efficient capital market and provision of incentives for the inward flow of capital. I would expect to see the same dynamic operating in Europe over the coming years, namely, a shift from reliance on fiscal policy as a stabilizer in the traditional Keynesian sense to more reliance on investment incentives. Changes in the structure of European economies with an emphasis on greater openness will weaken the effectiveness of traditional fiscal policy and increase the effectiveness of incentives used to attract an inflow of capital.

I conclude with a radical proposal. One of the problems with fiscal policy in Europe today is that among EC countries there is wide variation of outstanding public debt relative to GNP. Giovannini's table 10 excludes Ireland and Denmark, which have even higher ratios than Italy. Even at common interest rates, therefore, debt-servicing burdens vary sharply from country to country. To create a level fiscal playing field at the time when a European currency union is created, all existing European public debt ought to be consolidated as of a given date in Brussels. The consolidated debt would become the future obligation of the European Community as a whole, and the national capitals would be relieved of it.

This consolidation would have two advantages. First, it would create greater comparability at the beginning of the monetary union in the fiscal



situations of countries. Obviously, differences would remain because of differences in social security and other expenditures, but gradually some of those other differences will be harmonized for other reasons.

Second, the consolidation would create in Brussels a need for revenue for a purpose other than the common agricultural policy, which is a bane for almost everyone, including the European taxpayer. It would create some competition in Brussels for revenue. It would lay the foundation for a proper fiscal system at the Europewide level in order to service the consolidated debt.

Again, I draw inspiration from the United States. One of the shrewdest moves that was made by George Washington's administration under the leadership of Alexander Hamilton in the 1790s was for the new United States of America to assume all the debts of the 13 states. That was the beginning of the federal fiscal system. Obviously, this proposal is more likely to appeal to those who desire a future United States of Europe than those who do not.

**Robert E. Hall:** Whereas Richard Cooper focused on the fiscal side of the successful federal structure of the United States, I want to talk about the United States as a highly successful monetary union. There is a close analogy between the present situation in Europe and the historical situation in the United States from the end of the Revolutionary War in 1781 to the ratification of the U.S. Constitution in 1788.

After the war, the thirteen newly established states had thirteen separate monetary units all called pounds. The American currencies did not circulate at par with the British pound, but floated far below the British unit and were unstable relative to each other. This monetary system was widely regarded as chaotic. By the time the Constitutional Convention met in 1787, it understood that something must be done. Thus, Article I, section 8, of the Constitution grants Congress the power to create a monetary unit. And, it was soon after the adoption of the Constitution that Congress passed legislation creating the U.S. dollar, a unit that had never before existed.

Many things are being taken for granted in the European monetary union that were not taken for granted in 1787–88. In particular, the early Americans understood that the only essential step in creating a monetary unit is the purely intellectual exercise of defining the unit. In fact, the same sentence of the Constitution that grants Congress the power to

create a unit of value also grants it the power to develop a system of weights and measures. At that time, a unit of value was simply assumed to be a certain amount of precious metal, and so Congress adopted a bimetallic definition of the dollar in 1791. That was all it did.

That turned out to be a very useful application of Congress's power. It did not create a central bank. It did not create any monetary instruments. Indeed, there were no federal government monetary instruments until the Civil War, except for during the period of the Bank of the United States, which was not the same as what we have today and was an inessential part of the monetary system. Congress's action was an intellectual intervention in the economy, parallel to setting the length of a yard or the volume of a gallon.

On the other hand, Alberto Giovannini's paper suggests that Europe today takes for granted that a conventional central bank—with reserves denominated in a new monetary unit (which I understand might be called the frankfort)—is the ultimate goal of monetary union.

Monetary policy would be executed by open-market operations in member-government securities or by obligations of the European central government. Richard Cooper solves this problem by equating the two. The central bank's portfolio would consist, on the asset side, of this hodgepodge of government securities or central European government securities. On the liability side, I believe there would be paper currency, though I haven't seen an extensive discussion of this. Paper currency is more important in Europe than in the United States. (In Europe, payment by check or credit card is correspondingly less important.) There would also be reserves. Although I do not believe there should be reserve requirements, that is essentially a fiscal question. Should the European central government raise revenue through the holding of more reserves than would otherwise be held? In other words, should it tax through reserve requirements?

If one assumes that conventional thinking would also mean paying no interest on either type of liability, then the European central bank would be a tremendous money-maker. The resulting increase in revenue might be used to raise spending on wasteful programs such as the common agricultural policy. Again, I agree with Cooper's remarks that a step that creates a source of revenue for the central European government should be avoided.

So, does Europe have to adopt these conventional ideas? Let me

discuss some alternatives. The European central bank could instead have only reserves as liabilities and might grant individual European governments the power to issue currency denominated in the frankfort. This plan's advantage is that it denies the central government the seigniorage from those securities and returns it to the member governments.

I would also strongly recommend that the central bank pay interest on its reserves. If it does so and pays close to market rates on the reserves, that would cancel the other source of revenue and make the central bank more an intermediary than a revenue-raiser. Further, the interest rate paid on reserves might become the instrument of monetary policy. There is much to be said for using an interest instrument rather than a monetary-quantity instrument. The idea would then be simply to specify the volume of reserves as a given. Presumably, the volume would be large if reserves pay close to market rates, because the liabilities of the central bank would be as attractive as other short-term government instruments. Thus, the bank would use, as a policy instrument, the differential between the rate paid on reserves and open market rates on similar securities. If the bank pays higher interest on reserves, the demand for reserves rises, and there is deflationary pressure. To stimulate the European economy and raise prices, the central bank would increase the differential and decrease the demand for reserves.

The interest rate differential is, I think, an attractive way to run monetary policy. It fits into what is highly desirable in the context of monetary union, elimination of the central bank as a fiscal agent. That is, this whole program would eliminate the rather significant amount of taxation that currently occurs through central banks.

Individual countries would issue their own currencies, which would be an element of their own national debt. Small denominations of bearer debt would be convertible on demand into the reserves of the European central bank. Europe would then return to the way in which the gold standard worked in later years, when governments issued similar securities convertible on demand into gold.

This proposal raises the interesting possibility that any given government could suspend conversion. There has been a debate in the economics of the gold standard as to whether that is a bad or good thing. It is a bad thing in that it reduces the credibility of the instruments. It is a good thing in that it provides relief from misbehavior of the central bank in

the present case or misbehavior of the gold market under the historical gold standard. Also, it would retain an element of national control if there was less-than-complete faith in the quality of monetary policy being made by the central bank. If the central bank does its job, suspension by national governments would be unlikely.

These ideas deserve exploration when discussing what the ultimate system should look like. It should not be taken for granted that the goal of monetary union is a European central bank that operates in exactly the same way as the Bundesbank or the Federal Reserve. This is an opportunity to think differently on this point and to generate more efficiency in, and better performance of, monetary policy.

### **General Discussion**

Some panelists discussed the persistent positive return achieved in recent years by investing in the French franc. Benjamin Friedman pointed out that the distribution of returns from taking a long position in francs had “fatter tails” than would be expected if the returns were normally distributed. Hence, he was not surprised that the capital asset pricing model, which assumes normal distributions, underestimates the risk premium. Alberto Giovannini added that if investors in foreign exchange fear a disastrous but rare event, the actual return in most sample periods would exceed the expected return, which would take into account the possibility of the disaster. Hence, even if investors were risk-neutral, average sample returns would give the appearance of a positive risk premium. Similarly, in a risk-averse world a risk premium estimated from average sample returns would have a high probability of exceeding its true value.

William Brainard noted that a risk premium for an agent on one side of the foreign exchange market is a risk discount on the other. Explanations of the risk premiums therefore require information about which side of the market is “long.” The assumption that all individuals have the same preferences and endowments makes it difficult to explain why all agents do not hold the same market basket of assets, and why the risk characteristics of assets look different to agents on opposite sides of the market.

Friedman argued against separating the issue of whether there should

be a United States of Europe from the issue of currency unification. He argued that a common currency is an essential element of what it means to be a country: historically, it has been rare for one country to have more than one currency, or for one country to officially use another's currency. In the case of the United States, he noted that the issue of monetary union did not come up in isolation, but was dealt with in the First Article of the Constitution. Similarly, Friedman felt that the impetus for a common European currency was as much a desire to move toward a United States of Europe as a desire to improve the operation of the monetary system. Richard Cooper, while agreeing that currency unification was a symbolic issue in the current debate over political and economic unification, thought that it was important to make clear economic arguments for or against currency unification and also discuss the feasibility and potential value of currency unification even in the absence of political unification. Although he believed that currency unification in Europe has great merit, he noted that it is quite possible to have regional influence over economic policy even in politically unified countries. For example, U.S. states can and do collect their own taxes, and control their own expenditures. Separate state or regional currencies should be ruled out on economic grounds if they are to be ruled out.

Martin Baily believed a common currency might have important consequences for the competitiveness of labor markets, since it would undermine the monopoly power of labor unions. Thus, the unions' ability to affect the internal distribution of income would be diminished. Robert Lawrence, noting the author's analysis of the differential effect on different economies of the oil price shock, observed that a unified Europe could face other shocks that might create internal disagreement about economic policy. For example, appreciation in the European currency, like the appreciation of the dollar in the early 1980s, will likely have disparate effects on different regions. In the United States, the dollar's rise led to differences in protectionist pressures among regions of the country. A unified Europe is likely to encounter similar divergences in the wishes of the separate states.

Robert Barro suggested that the allocation of seigniorage was another consideration in designing a central monetary authority. He reasoned that it was not desirable to reward countries that had run large deficits and gone heavily into debt. He therefore suggested that the amounts of debt assumed by the central authority be proportional to each country's

GNP, with the total amount just sufficient to absorb the seigniorage the central authority would get from the issue of common currency. This scheme would use debt relief to compensate individual countries for the loss of their seigniorage, and would not redistribute wealth to the central authority.

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