

DISCUSSION PAPER SERIES

No. 1685

EMU: WHY AND HOW IT MIGHT HAPPEN

Charles Wyplosz

INTERNATIONAL MACROECONOMICS



Centre for Economic Policy Research

Discussion Papers

No.	Authors	Title	Prog.	Date
1506	S Haggard J Mcmillan C Woodruff	Trust and Search in Vietnam's Emerging Private Sector	TE	11/96
1507	M Karanassou D J Snower	Is the Natural Rate a Reference Point?	HR	11/96
1508	H-W Sinn	International Implications of German Unification	FE	11/96
1509	G M Milesi-Ferretti A Razin	Current Account Sustainability: Selected East Asian and Latin American Experiences	IM	11/96
1510	L E Svensson	Price-level Targeting versus Inflation Targeting: A Free Lunch?	IM	11/96
1511	L E Svensson	Inflation Forecast Targeting: Implementing and Monitoring Inflation Targets	IM	11/96
1512	T Bauer K F Zimmermann	Unemployment and Wages of Ethnic Germans	HR	12/96
1513	M H Miller L Zhang	Hyperinflation and Stabilization: Cagan Revisited	IM	11/96
1514	D J Snower P Manzini	On the Foundations of Wage Bargaining	HR	11/96
1515	C Keuschnigg	Business Formation and Aggregate Investment	IM	11/96
1516	K F Zimmermann P Geil A Million R Rotte	Economic Incentives and Hospitalization in Germany	HR	11/96
1517	R Faulf-Oller	Mergers for Market Power in a Cournot Setting and Merger Guidelines	IO	11/96
1518	T Kollintzas V Vassilatos	A Stochastic Dynamic General Equilibrium Model for Greece	IM	11/96
1519	G Bertola R Rogerson	Institutions and Labour Reallocation	IM	11/96
1520	F Degeorge B Moselle R Zeckhauser	Hedging and Gambling: Corporate Risk Choice when Informing the Market	FE	12/96
1521	R Winter-Ebmer	Benefit Duration and Unemployment Entry: Quasi-experimental Evidence for Austria	HR	12/96
1522	S Lutz I Herguera	Minimum Quality Standards as Facilitating Devices: An Example with Leapfrogging and Exit	IT	11/96
1523	P Martin G I Ottaviano	Growing Locations: Industry Location in a Model of Endogenous Growth	IM/IT	11/96
1524	G De Fraja	Minimum Wage Legislation, Work Conditions and Employment	HR	11/96

EMU: WHY AND HOW IT MIGHT HAPPEN

Charles Wyplosz

Discussion Paper No. 1685
August 1997

Centre for Economic Policy Research
25–28 Old Burlington Street
London W1X 1LB
Tel: (44 171) 878 2900
Fax: (44 171) 878 2999
Email: cepr@cepr.org

This Discussion Paper is issued under the auspices of the Centre's research programme in **International Macroeconomics**. Any opinions expressed here are those of the author and not those of the Centre for Economic Policy Research. Research disseminated by CEPR may include views on policy, but the Centre itself takes no institutional policy positions.

The Centre for Economic Policy Research was established in 1983 as a private educational charity, to promote independent analysis and public discussion of open economies and the relations among them. It is pluralist and non-partisan, bringing economic research to bear on the analysis of medium- and long-run policy questions. Institutional (core) finance for the Centre has been provided through major grants from the Economic and Social Research Council, under which an ESRC Resource Centre operates within CEPR; the Esmée Fairbairn Charitable Trust; and the Bank of England. These organizations do not give prior review to the Centre's publications, nor do they necessarily endorse the views expressed therein.

These Discussion Papers often represent preliminary or incomplete work, circulated to encourage discussion and comment. Citation and use of such a paper should take account of its provisional character.

Copyright: Charles Wyplosz

CEPR Discussion Paper No. 1685

August 1997

ABSTRACT

EMU: Why and How It Might Happen*

This paper reviews the history, economic rationale and main components of the project of establishing a monetary union in Europe by 1999. The adoption of a single currency is shown to be the best available option following the liberalization of capital movements. Much of the institutional design (central bank independence and objectives, fiscal restraints) reflects Germany's fears of inflation as it is asked to give up its currency. The fiscal restraints are excessive, however, and a source of contractionary bias. The paper also presents the timetable of the final countdown.

JEL Classification: E58, E61, F36, F41

Keywords: Europe, monetary union, fiscal restraints, convergence, capital mobility

Charles Wyplosz
Graduate Institute of International Studies
11a Avenue de la Paix
1202 Genève
SWITZERLAND
Tel: (41 22) 733 1087
Fax: (41 22) 733 3049
Email: wyplosz@hei.unige.ch

*This paper is forthcoming in the *Journal of Economic Perspectives*, Autumn 1997. For useful comments and advice, and without any implications, the author thanks the editors, Brad DeLong, Alan Krueger and Tim Taylor, as well as Benoît Coeuré, Barry Eichengreen, Hans Genberg, Paul de Grauwe, Paul Masson, Jacques Mélitz, Maury Obstfeld and Richard Portes.

Submitted 27 July 1997

NON-TECHNICAL SUMMARY

The decision to adopt a single currency is the outcome of constrained optimization. The constraint is the impossible trilemma: given the freedom of capital flows, the choice is between freely floating exchange rates and monetary union. The assessment is that monetary union dominates a free float. This assessment is based on the experience with floating exchange rates since 1973: wide and long-lasting fluctuations (20–50% over three to five years) are just not compatible with fully open markets and the complete removal of border posts. While that assessment is open to debate (but seldom challenged so far), the discussion on the intrinsic desirability of the monetary union is moot as it ignores the constraint.

The (unconstrained) optimum currency area literature distinguishes three criteria under which two or more countries could share the same currency without seriously adverse consequences. On the openness criterion, Europe scores rather well. The same applies to the second criterion, diversification. A wide body of research shows that there is more co-movement in macroeconomic variables among European countries than between individual European countries and the United States or Japan. Yet, Europe is less-suited to be an optimum currency area than the United States. On labour mobility, the third criterion, Europe is clearly not an optimum currency area. Two caveats are in order, however. First, the lack of labour mobility is not a national but a regional phenomenon in Europe. It affects regions within existing nations of Europe, and there is no reason why monetary union would make things worse. Second, both the occurrence of shocks and labour mobility may change as economic integration proceeds. It is not surprising that Europe is not as much an (unconstrained) optimum currency area as the United States. Would the US have passed the currency area tests a century ago?

One striking feature of the Maastricht Treaty is that it anticipates a long eight-year phase from the passage of the treaty in 1991 to the deadline for a single currency by 1999. This long phase-in reflects the domination of the 'economist's' view over the 'monetarist's' view. The 'economists', chiefly officialdom, see the shift to monetary union as the last step in successful efforts to eradicate inflationary behaviour. EMU is to be born in a land dedicated to a culture of price stability. The 'monetarists' are most academic economists. They see the shift to EMU as a regime change where past behaviour of both the public and private sectors is a bad predictor of future behaviour. What is needed in the monetarist view are solid institutions, chiefly central bank independence. Other convergence criteria create pain with no

assured gain. It is impossible to say what would have happened if EMU had started fairly promptly after ratification of the Maastricht Treaty in 1991. What is known is that the period dedicated to convergence has been especially agitated, however. The debate on postponement illustrates the view that there is never likely to be a time when all countries can meet the exacting convergence criteria.

Of the criteria set in the Maastricht Treaty, those mandating inflation convergence have proven relatively easy to achieve. The budgetary criteria are more challenging, however. Why, after such a long period of convergence, are the budget criteria still some way off? Part of the problem is that the tight monetary policies designed to meet the inflation criteria have helped create a slow-growth climate for Europe in the 1990s, with double-digit unemployment rates and no net job creation since the beginning of the decade. While this has made it possible to achieve inflation convergence, it has also reduced tax revenues, causing deficits that will not go away and forced governments to adopt further policies of fiscal contraction. This vicious cycle is jeopardizing monetary union both by making the fiscal targets more difficult to achieve and by undermining public support. The situation is now a gamble: either a country reaches EMU and is able to relax after having indeed put its fiscal house in order, or it fails entry (or EMU does not take place at all) because excessively restrictive economic policies have deepened the budget deficit.

While it is difficult to disagree with the view that fiscal policy ought not to jeopardize monetary and financial stability, how to provide the incentives for appropriate fiscal policy is open to debate. In principle, the proper answer must be in terms of 'sustainability' since unsustainable debt build-up must eventually be reversed (by definition). The proper definition of sustainability would be that the state must remain solvent, a definition that emphasizes the future behaviour of fiscal authorities. Here again information from the past does not reveal what a country will do after it is inside EMU. The Maastricht approach, relying on arbitrary quantitative limits, is quite unsophisticated.

Examples from the United States (where most states have adopted fiscal restraints) are interesting, but require some care as they are transposed to the case of Europe. In true federations the central government is as large as the lower-level governments, and is in charge of macroeconomic stabilization. In Europe, in contrast, the equivalent of a central government is the European Commission, which is not allowed to run deficits and whose spending represents a mere 2% of European Union GDP. For the same reason, the risk that lower-level governments may be tempted to bait the federal authorities into rescuing them does apply to Europe.

There exist less coarse methods for providing governments with effective incentives against fiscal irresponsibility. They involve a mix of market-based discipline and appropriate institution-building. True, history suggests skepticism about the ability of financial markets alone to impose discipline. This is presumably why the Maastricht Treaty includes a no-bailout clause, which explicitly forbids the rescue of one government either by its fellow members or by Community institutions, including the European Central Bank. In this way, fiscal misbehaviour becomes a strictly national issue with no union-wide implication and fiscal restraint is unnecessary.

The Maastricht Treaty is the fundamental act on which Europe rests. It is an international treaty, formally ratified by all European Union countries, and it supersedes national legislation. Giving up EMU would throw up more than just monetary union. It would create a situation of deep political crisis with unpredictable consequences. For that reason only, the bet is that EMU will be on, on time.

Introduction

The adoption of a single currency has long been a holy grail for Europe. Since the late 1950s, various plans had been devised and shelved, as Mundell (1993) describes in a brief and insightful history. But in a few sharp steps between 1988 and 1991, bewildered Europeans saw their governments agree to what is now known as the Maastricht Treaty.

The story begins auspiciously in 1986. The European Community emerges from a decade-long period of little institutional progress, high inflation and rising unemployment following the oil shocks. This is the year when three new countries (Greece, Spain and Portugal) join the European Community and when the Single European Act (frequently dubbed "1992," the year when it came into effect) is adopted as an extension of the founding Treaty of Rome. The aim of the Single Act is to plug the loopholes which limited the full mobility of people, goods and capital within Europe. In the process, all restrictions to capital movements were eliminated.¹

It is this innocuous-seeming step that made a move to monetary union unavoidable. The reason is a straightforward implication of the Mundell-Fleming textbook model of an open economy, known in Europe as the "impossible trinity" principle.² This principle asserts that only two of the three following features are mutually compatible: full capital mobility, independence of monetary policy, and a fixed exchange rate. The problem arises because, under full capital mobility, a nation's domestic interest rate is tied to the world interest rate (at least for a country too small to influence worldwide financial conditions). More precisely, any difference between the domestic and world interest rate is equal to the expected rate of depreciation of the exchange rate; that is, if interest rates are 5 percent in the domestic market and 3 percent in global markets, this must reflect that global currency markets expect the currency to depreciate by 2 percent this year. This is known as the interest parity condition: it

1. Oddly, the implementation date for this part of the Act was set on July 1, 1990, a year and a half ahead of the other provisions. Recent European Community members (Greece, Ireland, Portugal and Spain) were given grace periods.

2. The implications for Europe of this general principle, also known in Europe as the inconsistent trinity, were first articulated by Padoa-Schioppa (1985). For a textbook presentation of the Mundell-Fleming model, see e.g., Burda and Wyplosz (1997).

implies that integrated financial markets equalize expected asset returns, and so assets denominated in a currency expected to depreciate must offer an exactly compensating higher yield.

A country that wants to conduct an independent monetary policy, raising or lowering interest rates for the purpose of its domestic economy, must allow its exchange rate to fluctuate in the market. Conversely, a country confronted with full capital mobility that wants to fix its exchange rate must set its domestic interest rate to be exactly equal to the rate in the country to which it pegs currency; since monetary policy is now determined abroad, the country has effectively lost monetary policy independence.³ The alternative option of letting exchange rates float was never acceptable to Europeans. The perception is that markets are too integrated to allow for sizable relative price changes. Exchange rate and trade wars in pre-War period are still remembered as an example of a jack that must absolutely be kept in the box.

By the time it was decided to free capital flows, the European Monetary System (EMS) had been in place for nearly ten years. Most European Community members had agreed in early 1979 to set up a system of fixed bilateral exchange rates with fluctuation bands of $\pm 2.25\%$ around the declared central parity ($\pm 6\%$ for Italy and, briefly, the UK). Member central banks were committed to jointly intervene to defend the parities, in principle with no limit. When it was felt that existing parities had to be changed, the decision had to be taken by consensus. By the late eighties, the EMS was commonly hailed as a major success, credited with the relative stability of intra-European real exchange rates during the turbulent post-Bretton Woods period (for a survey of thought, see Begg and Wyplosz, 1993). This is illustrated in Figure 1 which presents bilateral exchange rates deflated by consumer price

3. In algebraic terms, the interest parity condition, where i is the domestic interest rate, i^* is the global rate, e is the expected rate of depreciation of the exchange rate (in logs), and t is an index of time periods, is:

$$i_t - i^*_t = E_t(e_{t+1}) - e_t.$$

A small country which pegs its exchange rate $E_t(e_{t+1}) = e_t = e_0$, where e_0 is the peg, can no longer choose the level of its own interest rate. Only by letting the exchange rate fluctuate can it control the interest rate, and then e_t becomes endogenous in the interest parity equation. This reasoning ignores risk aversion which gives rise to a risk premium term. Among developed countries the risk premium is known to be small and volatile.

indices (the following conclusions emerge irrespective of the choice of country pairs and price indices). Contrast the left panel which shows intra-European real exchange rates with the right panel which shows real exchange rates vis a vis the US dollar. Currencies with normal margins of fluctuations, like the French franc and the DM, displayed remarkably low volatility in comparison to floating exchange rates. Even where larger margins were allowed, like in Italy, quarter-to-quarter real exchange rates are still less volatile than with floating rates. There is no economic reason for the real exchange rate to be constant in the long-term, of course. However, among the OECD countries, multi-year fluctuations around the long-term trend suggest that most of the observed changes are temporary and do not correspond to structural shifts.

Perhaps blinded by the success of the EMS, leading European policymakers did not perceive that the freeing of capital flows meant the end of monetary policy independence in all but one EMS country. By the late 1980s it had become obvious that the Bundesbank, Germany's central bank, was setting monetary policy for Europe as a whole. One reason for this evolution was relative size (further increased by unification following the fall of the Berlin wall in late 1989). In addition, the Bundesbank had acquired a strong reputation for fighting inflation and keeping its currency strong. For countries where inflation was the number one target, adopting tough monetary conditions under the Bundesbank leadership was in fact welcomed. Small countries, like the Netherlands, had already given up monetary independence. Among the larger ones, the United Kingdom was outside the fixed exchange rate mechanism and therefore could retain monetary policy independence.

However, other larger European nations like France, Italy, and Spain, gradually realized that they had lost control of their domestic monetary policy. They concluded that the only way through which they could regain some influence over their monetary policies was to create a broader European monetary institution which would supersede the Bundesbank, and in which they would have a voice. Naturally, since Germany was being asked to sacrifice one of its most valued institutions for the sake of Europe, it was going to ask a lot in return. In particular, Germany was bound to require that this new European monetary institution offer strong guarantees of price stability. From the very beginning, Europe's future currency would have to be as strong as the Deutschmark. This would mean explicit institutional safeguards and exacting startup conditions. The negotiations leading to the Maastricht Treaty would bear the birthmark of this situation: what Germany asks, Germany gets, provided that it gives up

the Bundesbank.

The Maastricht Treaty

The Maastricht Treaty updates and incorporates the 1957 Treaty of Rome, the founding act of the European Community, and incorporates the Single Act implemented in 1992 (free movement of goods, people, and capital). The treaty has been formally ratified by all member countries. With the Maastricht Treaty, Europe ceases to be called the European Economic Community and becomes instead the European Union or EU, which involves both economic and political union. The economic component of the treaty mainly involves the adoption of a single currency. The political component has been left rather vague, hinting at an evolution towards joint defense and foreign affairs.

The treaty includes a detailed timetable for the adoption of a single currency. It sets in motion a gradual convergence process, espousing the view that the adoption of a common currency is just the cherry on the sundae, the last step in a process through which national currencies become indistinguishable from the Deutschmark. It is formally structured around three stages (Thygesen, 1993). The first stage begun in 1992 with the formal ratification of the treaty. During the second stage, started in January 1994, national central banks must be given formal independence and cease to grant direct loans to their nation's treasuries. The shift to the second stage also coincides with the establishment of the European Monetary Institute (EMI), with two main functions. One is to prepare the creation of the European Central Bank, whose statutes and mission are actually laid out of the Maastricht Treaty. The other function of the EMI is to oversee the "convergence criteria" which will be used to decide which countries are ready to enter the monetary union, marking the beginning of Stage III. This may happen as soon as a sufficient number of countries meet the convergence criteria, and must happen by January 1, 1999. The first formal review which took place in December 1996 concluded that a majority of countries did not satisfy the criteria.

What are these criteria? The underlying notion is that unless countries enter the single currency with similar inflation rates and fiscal positions, the single currency will be unsustainable. Three conditions deal with monetary convergence. First, the inflation rate of any country joining the single currency must be within 1.5 percentage points of the average of the three lowest rates in Europe. Second, the long-term interest rate in a country joining the

single currency must not exceed by more than 2 percentage points the interest rates observed in the three countries with the lowest inflation rates, on the grounds that high long-term rates reflect high expected inflation. Third, the exchange rate must have remained within the normal bands of the existing EMS "without severe tensions" for at least two years. Two other criteria concerns fiscal policy. They set ceilings on the ratios of debt/GDP (60 percent) and deficit/GDP (3 percent) ratios. At the time of the signing of the Maastricht Treaty in 1991, only Luxembourg -- which does not have a currency of its own -- could meet the five criteria.

Yet the wording of the treaty leaves out some room for flexibility. For example, the 60 percent ceiling can be interpreted as a target if "the ratio is sufficiently diminishing and approaching the reference value at a satisfactory pace" (art. 104c, b). In addition compliance will be decided by the heads of state upon receiving reports from the European Commission and the EMI, and a recommendation (not a decision) by the notoriously pro-EMU Commission.

The Maastricht Treaty had left a number of issues pending. Most of them concern the political side, but some also concern the actual operation of the monetary union. The "excessive deficit procedure" issue has been settled in June 1997. This procedure makes permanent one of the entry convergence criteria, the 3 percent deficit/GDP ceiling. It defines the "exceptional conditions" under which a country may be temporarily allowed to breach the ceiling, and it specifies how non-compliant countries will face private first, and then public reprimands, before being fined. Progress has also been made on symbolic matters: the new currency's name will be "euro" and the European Central Bank will be established in Frankfurt, Germany.

On all these issues, the German view has prevailed. The excessive deficit procedure is the one presented by Germany, and initially rejected by a vast majority of countries as excessively restrictive. The name of the currency itself reflects the German rejection of ECU, acronym for European Currency Unit and the name of an ancient French currency, although it is explicitly referred to in the Maastricht Treaty. German influence has not only affected the currency name and location. It is also Germany that insisted for the long transition process and the controversial convergence criteria. Moreover, the statutes and objectives of the European Central Bank remarkably resemble those of the Bundesbank: strong independence from government, responsibility clearly limited to price stability, no explicit involvement in bank supervision, and no lender-of-last-resort function.

Germany will again prevail when it comes to selecting the countries which qualify for membership in the single currency. That decision will be taken by the heads of state in spring 1998, with voting weights determined by country size (a combination of population and GDP). Once chosen as fit, a country must join the Economic and Monetary Union (EMU), even if it does not wish to, with the exception of Denmark and the United Kingdom who made opting out a condition of ratifying the treaty. Thus the Maastricht Treaty envisions a "two-speed" Europe, with a "core" of EMU members and a "periphery" of countries either rejected or opting out. Much of the debate revolves around the initial list of members. Will EMU start as a narrow Deutschmark zone (Germany, France, Belgium, Luxembourg, the Netherlands, Austria, Ireland)? Will the "Club Med" countries (Italy, Spain, Portugal) also join despite a reputation for tolerating inflation and deficits? Will the Nordic countries (Sweden, Denmark, Finland) want to join? The UK has already let it be known that it will stay out and Greece is not really trying.

Is Europe an Optimal Currency Area?

The decision to adopt a single currency is the outcome of constrained optimization. The constraint is the impossible trilemma: given the freedom of capital flows, the choice is between freely floating exchange rates and monetary union. The assessment is that monetary union dominates a free float. This assessment is based on the experience with floating exchange rates since 1973: wide and long lasting fluctuations (20 to 50 percent over three to five years) are just not compatible with fully open markets and the complete removal of border posts. While that assessment is open to debate (but seldom challenged so far), the discussion on the intrinsic desirability of the monetary union is moot as it ignores the constraint.

Yet, it is probably unavoidable that the question be asked whether EMU is welfare-increasing *per se*.⁴ This question has led to a revival of the literature on optimum currency

4. Some studies have attempted to measure directly the costs and benefits from EMU. Bean (1992) concludes that these attempts have failed to come up with tangible answers. The recent report by the Swedish Government Commission on the EMU (1997) provides an excellent and exhaustive review; it concurs that current knowledge prevents any sharp conclusion one way or the other.

areas following seminal works by Mundell (1961), McKinnon (1963) and Kenen (1969). Recent efforts have gone into providing formal models which confirmed the early insights (Bayoumi, 1994; Ricci, 1996). However, most of the work has attempted to size Europe up against the Mundell-McKinnon-Kenen criteria. The answer is lukewarm at best.

The (unconstrained) optimum currency area literature establishes the conditions under which two or more countries could share the same currency without seriously adverse consequences. It assumes that the nominal exchange rate has real effects; otherwise, there is no cost in a nation's giving up its own currency. In particular, the exchange rate is a policy instrument which can affect relative prices such as the real wage paid by producers, the ratio of traded to nontraded good prices, or the ratio of export to import goods prices. As one example of where this tool could be useful, consider the case where some exogenous shock requires that relative domestic to foreign prices change. Such an adjustment can plausibly be made easier and faster through the exchange rate, rather than by changing nominal prices throughout the economy or through migration of the factors of production from one sector to another.

The three criteria proposed in the literature are those features which make adjustment through exchange rates less effective or less compelling. One criterion is openness to mutual trade; greater openness means that most prices are being determined on markets at the area level, which reduces the ability of the exchange rate to alter significant relative prices. A second criterion is diversification of individual economies; a more diversified economy is less likely to suffer a country-specific shocks, which makes its own exchange rate a less useful tool. Finally, the third criterion is mobility of inputs across the area, especially labor. Greater mobility allows an economy to deal with asymmetric shocks through migration, lessening the need for adjustment through exchange rate changes.

On the openness criterion, Europe scores rather well. Measuring openness by looking at exports as a share of GDP, in the United States and Japan, exports as a share of GDP are 11 percent and 9 percent, respectively. Larger European economies like Germany, Italy, France, and the United Kingdom all have export/GDP ratios above 20 percent, and smaller EU economies like Ireland and Belgium have export/GDP ratios above 70 percent. It makes sense that the smallest European countries are traditionally warm supporters of monetary union. Because of their extreme openness to foreign trade, relative prices in their economy are set on world markets, and the exchange rate is a less useful policy tool.

As to the second criterion, European economies are found usually to be well-diversified. Countries with important endowments in natural resources, like the Netherlands and the UK with their oil and gas resources, stand apart, but only slightly so. A wide body of research looks at the risk of country-specific (asymmetric) shocks. One set of studies investigates co-movements of key macroeconomic variables like GDP, unemployment, inflation, or the current account balance across European countries (Cohen and Wyplosz, 1989; Weber, 1990). Other studies compare shocks across regions with shocks across countries (de Grauwe and Vanhaverbeke, 1993; von Hagen and Neumann, 1994). The general message is that there is more co-movement in macroeconomic variables among European countries than between individual European countries and the United States or Japan. Further studies attempt to separate out domestic from external shocks, and demand from supply shocks. The underlying argument is that demand shocks are at least partly due to divergence in monetary policy which will be less prevalent in EMU -- so attention should focus on supply shocks. Bayoumi and Eichengreen (1993), for example, find more asymmetric supply shocks across Europe than across the United States, although they identify a more coherent group of core countries around Germany. They suggest that Europe is less-suited to be an optimum currency area than the United States.

Work on the labor mobility criterion clearly suggests that Europe is not an optimum currency area. For example, looking at the U.S. as a prototype monetary union, Blanchard and Katz (1992) find that when a particular region is hit by an adverse shock a large proportion of the subsequent drop in employment is matched by labor migration. Applying the same approach to European regions, Decressin and Fatas (1995) find less labor mobility and longer-term effect on regional unemployment, confirming a similar finding by Eichengreen (1991). Two caveats are in order, however. First, the evidence (Eichengreen, 1993) is that the lack of labor mobility is not a national but a regional phenomenon in Europe. It affects regions within existing nations of Europe, and there is no reason why monetary union would make things worse. Second, both the occurrence of shocks and labor mobility may change as economic integration proceeds. Krugman (1993) conjectures that economic integration leads to increased regional specialization. In that case, the situation will worsen as the incidence of asymmetric shocks will increase. Frankel and Rose (1996) empirically reject Krugman's conjecture as they find that integration leads to more diversification. In that case the criteria for an optimum currency area are endogenous. It then comes as no surprise that the United

States, which has shared the same currency for a century, appears better suited for a single currency than does Europe.

In the end of it all, we need not be impressed by the result that Europe is not as much an (unconstrained) optimum currency area as the US. The choice is not between EMU and heaven. It is between EMU and freely floating exchange rates, with possibly poorly coordinated monetary policies, within an area gradually as tightly integrated as the US. Would the US have passed the currency area tests a century ago? And had it failed, all things considered was it mistake to adopt a single currency?

Convergence: Will Tough Criteria Backfire?

One striking feature of the Maastricht Treaty is that it anticipates a long eight-year phase from the passage of the treaty in 1991 to the deadline for a single currency by 1999. This long phase-in was the result of a conflict between two competing views.

One view argued that monetary union would be sustainable only if those countries that joined had first achieved a low level of inflation and had resolved fiscal imbalances. This position is commonly referred to as the "economist's view," although it does not seem to have been fully articulated in the professional literature. However, it was popular among the monetary authorities; for example, the Bundesbank championed it under the name of "coronation approach," seeing the shift to monetary union as the last step of successful efforts to eradicate inflationary behavior. EMU is to be born in a land dedicated to a culture of price stability.

The opposing view, generally referred to as the "monetarists' view," had the favor of most academic economists.⁵ Their argument was that the creation of a new currency with its own independent central bank would radically alter the wage and price mechanisms, inflation trends, and the incentives of national governments when they decide on fiscal policies. In this view, which is rooted in the Lucas critique, pre-monetary union behavior of both the public and private sectors is a bad predictor of their behavior once the single central bank is in place. Instead, what is needed in the monetarist view are solid institutions, chiefly central bank

5. For a statement of the "monetarist" view, see Begg et al. (1991). The rationale of the terminology of "economists" versus "monetarists" is unclear. It goes back to earlier debates on EMU in the 1970s, well summarized in Mundell (1993).

independence. Other convergence criteria create pain with no assured gain.

Predictably, the "economist" view favored by central bankers won out over the "monetarist" views of academic economists. It is impossible to say what would have happened if EMU had started fairly promptly after ratification of the Maastricht Treaty in 1991. However, what is known is that the period dedicated to convergence has been especially agitated. Even before the Maastricht Treaty could be ratified, a series of exchange rate crises forced Italy and the United Kingdom out of the EMS. After severe currency realignments, the "normal" ± 2.25 percent bands of fluctuation were widened to ± 15 percent, effectively marking the end of the system as initially designed and intended. By mid-1997, about one year before the scheduled selection of the countries which will start EMU, there is considerable pressure to postpone the starting date. The surrounding debate well illustrates the view that there is never likely to be a time when all countries can meet the exacting convergence criteria.

Of the criteria set in Maastricht, those mandating inflation convergence have proven relatively easy to achieve.⁶ However, the budgetary criteria -- that the debt/GDP must not be above 60 percent nor the deficit/GDP exceed 3 percent -- are more challenging, as Table 1 documents. Why after such a long period of convergence are the budget criteria still some way off? Part of the problem is that the tight monetary policies aimed at meeting the inflation criteria have helped create a slow-growth climate for Europe in the 1990s, with double-digit unemployment rates and no net job creation since the beginning of the decade. While this has made it possible to achieve inflation convergence, it has also reduced tax revenues, causing deficits that will not go away and forced governments to adopt further policies of fiscal contraction. This vicious cycle is jeopardizing monetary union both by making the fiscal targets more difficult to achieve and by undermining public support. The situation is now a gamble: either a country reaches EMU and is able to relax after having indeed put its fiscal

6. However, the jury is still out for the criterion concerning the long-run interest rate, which is not to exceed the average of the three lowest-inflation countries by more than 2 percentage points. Since long rates incorporate market expectations of inflation, they are affected by the probability of joining the EMU. This opens up the possibility of multiple equilibrium: if the markets believe that a country will not join, they may expect monetary policy relaxation and rising inflation, and set high interest rates which indeed rule out EMU membership. Conversely, an expectation that a country will join may bring down long-term rates, thus allowing the country to meet this criteria for convergence.

house in order, or it fails entry (or EMU does not take place at all) because excessively restrictive economic policies have deepened the budget deficit.

Monetary Union and Fiscal Discipline

The inclusion of restrictions on fiscal policy in a treaty which, after all, aims at monetary union, is a source of considerable debate. Before the Maastricht Treaty, most academic analyses emphasized that national fiscal policy would have to become more active to compensate for the loss of the exchange rate instrument.⁷ The opposite approach, that monetary union requires fiscal policy restraint, is grounded in the view that excessive budget deficits may lead to eventual monetization of the debt (Sargent and Wallace, 1981). Monetary authorities were clearly concerned by high debts in some countries, especially in Italy, whose public debt represents some 18 percent of Europe's GDP. They feared that an explicit or implicit lender-of-last-resort function might force the European Central Bank to step in and indirectly monetize a country's public debt if banks faced a financial crisis in the wake of a default. This concern is reflected in the budgetary criteria for EMU membership and in the "excessive deficit" procedures designed to enforce fiscal rectitude once in the monetary union.

While it is difficult to disagree with the view that fiscal policy ought not to jeopardize monetary and financial stability, how to provide the incentives for appropriate fiscal policy is open to debate. The debate implicitly revolves around one's view of the ability of fiscal policy to play a macroeconomic stabilizing role. It also hinges on the ability to define at the time a deficit is enacted that it is "excessive." In principle, the proper answer must be in terms of "sustainability" since unsustainable debt buildup will eventually have to be reversed (by definition). Fiscal policy sustainability is often associated with stationarity of the debt, usually defined as a stable debt/GDP ratio. In fact, the proper definition of sustainability would hold only that the state will remain solvent, a definition that emphasizes the future behavior of fiscal authorities. By emphasizing future behavior, this view of sustainability also implies that information from the past does not reveal what will a country do after it is inside EMU, and that rules for fiscal rectitude must affect future fiscal policies. This is a tall order.

7. See the papers by Begg, Masson and Melitz, and Wyplosz in European Economy, Special Edition No.1, 1991.

The Maastricht approach, relying on arbitrary quantitative limits, is quite unsophisticated.⁸ The 3 percent annual debt/GDP rule corresponds to what is called the "golden rule" in Germany: governments may only borrow to pay for investment spending, and it turns out that governments usually dedicate about 3 percent of GDP to such spending. Even if one ignores doubts about the 3 percent estimate itself, the rule is naïve at best; it ignores socially productive spending like education which is classified as consumption, while it may include ill-designed investment spending. The 60 percent debt/GDP rule was chosen because it was the average of EU countries when the Maastricht Treaty was being negotiated, with not even the pretense of any justification.

Yet Europe is not alone in adopting quantitative limits for fiscal policy. How does it work elsewhere, where a unique central bank coexists along with several fiscal authorities? In the United States, for example, states must operate under balanced budgets, borrowing money only for by issuing bonds for explicit capital projects. But the comparison must be handled quite carefully. In true federations the central government is as large as the lower-level governments, and is in charge of macroeconomic stabilization. In Europe, in contrast, the equivalent of a central government is the European Commission which is not allowed to run deficits and whose spending represents a mere 2 percent of Europe Union GDP.

The size and role of a powerful central government matters for two main reasons. First, several studies have shown that in federal states, the center smoothes out income fluctuations through redistribution from regions in good economic shape to regions undergoing a recession. This function operates automatically through the federal budget, the result of a combination of welfare support and income taxes (Sachs and Sala-i-Martin, 1992; Bayoumi and Masson, 1995; Pisani-Ferry et al., 1995). In this setup, it can make sense to limit the stabilization role of sub-central authorities. Second, quantitative fiscal restraints at some levels of government can actually encourage the buildup of debts at other levels, according to evidence from von Hagen and Eichengreen (1996). The problem occurs when fiscally irresponsible lower-level governments refuse to borrow and can bait the federal authorities into rescuing them. In Europe, a central government with powerful redistribution and stabilization authority is not within the foreseeable future. Consequently, Europe needs national-level stabilization policies much more than individual U.S. states do, and there is no

8. For a critique of the entry criteria ceilings, see Begg et al. (1991) and Buiter et al. (1993).

risk that national governments will conduct irresponsible fiscal policies in an attempt to extract transfers from a penniless center.

Are there less coarse methods than quantitative limits of providing governments with effective incentives against fiscal irresponsibility? One attractive approach would be to rely on financial markets to impose discipline. In a single currency area, interest rates no longer reflect a country's sovereign risk. Instead, they reflect risk borrowers belonging to the same risk category, be they fiscal authorities (a municipality in the United States, a province in Canada, or a government in Europe) or private borrowers. To the extent that markets price risk correctly, the demand for public debt of various government could act as both a barometer and a constraint. If a country lets its debt grow and there is an enhanced risk of default, markets should react by downgrading their evaluation and by increasing the interest rate at which new debt is being financed, until fiscal authorities see it to be in their best interest to curtail the deficit.

However, history suggests skepticism about the ability of markets to impose discipline in this way. For one, markets tend to throw good money after bad for awhile (Eichengreen and Portes, 1987). When they react, it is often too late and too violently. They abruptly cut financing, making it impossible for the government to borrow further and bankrupting large bondholders, among them commercial banks and other financial institutions. This leads to a scenario where central banks may feel compelled to monetize (part of) the debt.⁹

This is presumably why the Maastricht Treaty includes a no-bailout clause which explicitly forbids the rescue of one government either by its fellow members or by Community institutions, including the European Central Bank. In this way, fiscal misbehavior becomes a strictly national issue with no union-wide implication and fiscal restraint is unnecessary. Yet, Germany has argued that the no-bailout clause cannot be fully credible, that any rule can always be circumvented.

In the end, the explicit fiscal restraints embodied in the excessive deficit procedure can be seen as insurance against a remote risk that European institutions would be compelled to monetize some nation's out-of-control debts. This insurance scheme may turn out to be very costly in terms of the ability to run countercyclical policies.

9. That this mechanism bears strong resemblance to the events that provoked hyper-inflation in Germany in 1922-23 is not irrelevant for an understanding of the Maastricht Treaty.

EMU and the Rest of the World

The potential for the euro to replace the U.S. dollar as the world's premier currency is one of the understated motivations of EMU. In part, the desire is a symbolic one; it is the belief that "great powers have great currencies" (Mundell, 1993, p. 9). In part, it is a hope to reap seigniorage, although U.S. benefits from seigniorage are worth only about 0.2% of GDP (Alogoskoufis and Portes, 1992). The usual criteria for becoming the world's lead currency are measures like size (GDP or the share of world trade). By these measures, the prospects for the euro to challenge the dollar are favorable but not overwhelming. For example, Europe's international trade done with non-European will not exceed by much Germany's current level of foreign trade -- once intra-European trade is netted out (Hartmann, 1996). Also, history teaches that it takes time for a reserve currency to replace a previous one (Eichengreen, 1989; Mundell, 1993). To overcome its handicap relative to the incumbent U.S. dollar, the euro must discover some absolute advantage.

One potential advantage is likely to be greater price stability. As a currency expected to follow a long-run trend of appreciation, the will be a currency that stores value better than the alternatives. This prediction derives from the constitution of the European Central Bank which makes it more independent and more focused on price stability than the Federal Reserve. If anything, the constitution is even stricter than that of the Bundesbank and Europe's economy will be more stable than Germany's (Masson and Turtelboom, 1997). A counter-argument is based on politico-economic considerations. The board of the European Central Bank will be composed of representatives of all member countries. With the one-man one-vote principle, Germany's weight will be no larger than that of Belgium or Italy. The constituencies of the European Central Bank will not share the German allergy to even moderate inflation.¹⁰ In theory the outcome may differ from the wishes of the median European voter, and the bias can go in either direction (Alesina and Grilli, 1992). This

10. This is another reason why the Bundesbank has advocated a long convergence process: to provide for a period of deep conversion to a "stability culture". In a perceptive comment on Buiters et al. (1993, p. 97), Frankel interprets the Maastricht convergence process as a "test of will" referring to Buddhist traditions: "A meditating neophyte is supposed to learn to refrain from responding to a flea by scratching it, just as a political region is supposed to learn to refrain from responding to a local downtick in demand by lowering interest rates."

counter-argument is not very convincing.

A second potential advantage for the euro could be the depth and cost-efficiency of financial markets. The market for the euro and euro-denominated assets could be the world's largest, depending on whether the city of London shifts to the euro. Yet the location and prominence of markets relies increasingly less on regional considerations and more on the regulatory environment. Europe will have to fight its own heavy-handed approach and powerful lobbies if it wants the euro to become world's currency.

Thus, the best bet is that, for a long while at least, the dollar's supremacy will remain. Still is the creation of the euro bound to affect international monetary relations? Will it lead to more or less instability on exchange markets? Two arguments suggest more instability. First, if the U.S. dollar has been acting as a market leader on exchange rate markets, the shift to a situation of bargaining between more equal partners is likely to create greater volatility. Second, while the fairly open economies of Europe are now keenly interested in stabilizing world currencies, a euro zone would join the United States and Japan as giant economies less inclined to give up domestic policy objectives for the sake of exchange rate coordination. The opposite view is that moving from G-7 to G-3 should make it easier to negotiate methods for reducing volatility in exchange rates (Alogoskoufis and Portes, 1992; Goodhart, 1993; Kenen, 1996). In the end, little should change when the European Central Bank steps in the shoes of the Bundesbank as the master of the EMS exchange rate.

Finally, what will be the impact of economic and monetary union on the International Monetary Fund? One view is: nothing much. Each country will retain its existing role. In its annual review exercise, the IMF will have to take account of the fact that monetary policy is no longer a national responsibility, but that is already the case for other monetary unions in Africa and the Caribbean. However, a more entertaining if unlikely scenario envisions EMU countries merging as a single IMF member. Not only would Europe cast the largest number of votes and challenge U.S. dominance, but it could invoke the Agreements' article that states "the principal office of the Fund shall be in the territory of the member having the largest quota" and request that the IMF move from Washington to Madrid, Frankfurt, Paris or Amsterdam.

The Early Steps: What to Watch For

The Treaty of Maastricht sets a clear timetable: a single currency will come into being no later than 1999. So it may seem that all that remains is to watch the countdown before lift-off. Nothing is further from the truth. Power in the boosters is not assured, last minute checks reveal a number of blinking red lights, and politico-economic pressures are building up to dangerous levels. Public support for the euro is lukewarm at best; it is largely incomprehensible; as a symbol of national belonging it is desirable to some and threatening to others. As the time to launch draws near, popular anxiety is tending to rise. In virtually every country, politicians are making capital out of their opposition to monetary union. There are just too many o-rings around.

Must EMU start by January 1999? Several loopholes exist for sidestepping the deadline. First, it is understood that monetary union will not exist without both Germany and France. This gives each of these countries veto power that they can exercise by missing the convergence target. In fact, it appears that both are likely to miss the targets narrowly, which will inevitably lead to negotiations about their situation. Second, certain provisions of the treaty could be twisted to postpone startup beyond 1999, although it would be a far-fetched interpretation of the treaty.

By June 1998, Europe's heads of state must agree on the list of the passengers of the first mission. Many countries will not fulfill the formal criteria, so the decision will have a degree of arbitrariness relying on flexibility in the precise wording of the treaty. In anticipation, adversaries of economic and monetary union are calling for a postponement. In fact, any delay would feed doubts that convergence can be achieved and reduce chances of success. In that case, speculators could well unleash new attacks on exchange rates, which might make any transition to a single currency even more difficult to achieve.¹¹

Immediately after the list of members is drawn up, final preparations will start. At least one unresolved issue has been identified. Legal restrictions imply that the rate at which currencies will be converted into euro on January 1, 1999 must be those observed at the closing of markets on December 31, 1998. This creates the risk of major exchange market instability as traders will need to form a view of what the authorities are trying to achieve.

11. In any case, speculative attacks are expected against those countries which are not admitted to the single currency. Such attacks could be minimized if information is gradually leaked to the markets well in advance and if new dates for entry are clearly set along with a clear signal that the next decision will be positive.

The authorities, however, could split on the issue. Indeed, at a time of high unemployment and with their policy settings driven by the need to meet contractionary convergence criteria, some countries may be tempted to secure temporarily a competitive advantage by entering monetary union with an undervalued currency. Solutions for tying down the issue ahead of time still remain to be adopted (Begg et al., 1997; Obstfeld, 1997).

According to the Maastricht Treaty, the European Central Bank will come into existence soon after July 1998. It will have to coexist for six months with national central banks due to become its subsidiaries. From January 1999, the European Central Bank will operate only in euros, as will the financial markets. At the retail level, national currencies will continue to circulate and remain sole legal tender until July 2002, but will be legally considered as (horrendous six-digit) fractions of the euro. The euro itself will be finally introduced for retail transactions in January 2002 (probably), opening up a switch-over period of six months. Thereafter national currencies will be redeemed in euros for periods to be set by national legislation. The three-year overlap is bound to raise endless practical issues, not the least of which is that it may be difficult for governments and citizens to realize that the European Central Bank is solely in charge after 1999, and all surviving currencies as mere subdivisions of the euro with a fixed and irrevocably set conversion rate.

Conclusion

Normally currencies and nations coincide. Europe is set to attempt an original experiment. Is it going to work? Is it even going to happen? The fact that a year before lift-off doubts remain about the likelihood that EMU will start, or will start on time, is testimony to the fact that there can be no firm answers to these questions. Yet, some simple observations can take us a long way.

The Maastricht Treaty is the fundamental act on which Europe rests. It is an international treaty, formally ratified by all European Union countries, and it supersedes national legislation. Giving up EMU would throw up more than just monetary union. It would create a situation of deep political crisis with unpredictable consequences. For that reason only, the bet is that EMU will be on, on time.

Is the logic behind monetary union only political? Quite to the contrary. The political aim of a single currency has been pursued relentlessly by its advocates since the late 1950s;

several explicit attempts failed because economic conditions were not ripe. The Maastricht Treaty only came about because the lifting of capital controls had reduced the options to just two unpalatable extremes: either allow exchange rates to float freely or accept the complete domination of the Bundesbank over Europe's monetary policy.

Freely floating exchange rates are not compatible with a completely borderless economic area. They carry the germs of protectionist pressure and financial instability which threaten economic integration. As for dominance by the Bundesbank, it has been largely beneficial over the last decade, chiefly because inflation has been eliminated. Yet there have been costs (lasting double-digit unemployment), major policy mistakes that led to the currency crises of 1992-93, and continuing disagreements over the objectives of the Bundesbank. The current situation is not sustainable because it entails a fundamental contradiction. On the one hand the Bundesbank derives its leadership from a reputation of undeterred commitment to price stability in Germany. On the other hand, long-lasting leadership requires that all of Europe's economic conditions be taken into account, which is against the Bundesbank's constitutional duty to Germany. Tinkering with the Bundesbank's constitution is not only politically ruled out, it would also undermine its credibility and its ability to lead. EMU emerges as the best possible economic solution.

Attempts at assessing quantitatively the costs and benefits of monetary union are both frustrating and useless. Frustrating because, frankly, as economists we are unable to compute them with any precision, and we owe it to the profession to admit so in public. Our understanding of monetary and exchange rate policy is regrettably limited, and the lack of a precedent leaves us with more conjectures than certainties. Fortunately, quantitative estimates are useless unless they are sized up against the costs and benefits of the relevant alternatives, which is equally beyond our current ability. On the other side, an understanding of where the costs and benefits lie is generally helpful.

The direct benefits come in the form of reduced transaction costs and reduced uncertainty, possibly as well as additional transparency in competition. This is all likely to be small, but not trivial. Direct benefits also include lower real interest rates for countries where a sizable currency risk premium exist. Indirect benefits come from the institutional arrangements that accompany EMU. The broadening of central bank independence from political control would not have happened without EMU, and with it comes the realization that international competition is not achieved through lobbying for exchange rate

manipulation.

More ambiguous is the role of the fiscal restraints, both the entry conditions and the excess deficit procedure. In most countries, these restraints have promoted long-needed efforts at coming to grip with unsustainable deficits. At the same time, the insistence on price stability along with the adoption of rigid and arbitrary criteria of fiscal rectitude have already played a role in deepening and lengthening Europe's phase of slow growth, with huge costs in terms of unemployment and social suffering. The risk now is of more of the same in the early EMU years. As already noted, these costs are the consequence of EMU's parenthood: Germany could not be expected to give up its famed Deutschmark without extensive guarantees. These demands could not be turned down and have become excessive maybe because, once monetary union exists, many arrangements can be changed. Right now, Europeans are biting the bullet and look beyond the 1999 horizon.

References

- Alesina, Alberto and Vittorio Grilli, "The European Central Bank: Reshaping Monetary Politics in Europe." In Canzoneri, Matthew B., Vittorio Grilli, and Paul R. Masson, eds., Establishing a Central Bank: Issues in Europe and Lessons from the US. Cambridge: Cambridge University Press, 1992, pp. 49-85.
- Alogoskoufis, George, and Richard Portes, European Monetary Union and International Currencies in a Tripolar World." In Canzoneri, Matthew B., Vittorio Grilli, and Paul R. Masson, eds., Establishing a Central Bank: Issues in Europe and Lessons from the US. Cambridge: Cambridge University Press, 1992, pp. 273-302.
- Bayoumi, Tamim, "A Formal Model of Optimum Currency Areas," International Monetary Fund Staff Papers, December 1994, 41, 537-54.
- Bayoumi, Tamim, and Barry Eichengreen, "Shocking Aspects of European Monetary Union." In F. Torres, Francisco and Francesco Giavazzi, eds., The Transition to Economic and Monetary Union. Cambridge: Cambridge University Press, 1993, pp.193-240.
- Bayoumi, Tamim and Paul R. Masson, "Fiscal Flows in the United States and Canada: Lessons for Monetary Union in Europe," European Economic Review, February 1995, 39, 253-74.
- Bean, Charles R., "Economic and Monetary Union in Europe," Journal of Economic Perspectives, Fall 1992, 6, 31-52.
- Begg, David, and Charles Wyplosz, "The European Monetary System: Recent Intellectual History," in: The Monetary Future of Europe, London: CEPR, 1993.
- Begg, David, Jean-Pierre Danthine, Francesco Giavazzi, and Charles Wyplosz, "The East, the West, and the Deutschmark," Monitoring European Integration, 1990,1.
- Begg, David, Francesco Giavazzi, Luigi Spaventa, and Charles Wyplosz, "European Monetary Union - The Macro Issues," Monitoring European Integration, 1991,2, 3-68.
- Begg, David, Francesco Giavazzi, Jürgen von Hagen, and Charles Wyplosz, "EMU, Getting the End-Game Right," Monitoring European Integration, 1997, 7, 1-75.
- Blanchard, Olivier J. and Lawrence F. Katz, "Regional Evolutions," Brookings Papers on Economic Activity, 1992, 1, 1-75.
- Buiter, Willem, Giancarlo Corsetti, and Nouriel Roubini, "Excessive Deficits: Sense and Nonsense in the Treaty of Maastricht," Economic Policy, April 1993, 16, 57-100.
- Burda, Michael and Charles Wyplosz, Macroeconomics, A European Text, 2nd ed., Oxford, UK: Oxford University Press.
- Cohen, Daniel and Charles Wyplosz, "The European Monetary System: An Agnostic

Evaluation." In Bryant, Ralph, David Currie, Jacob Frenkel, Paul R. Masson, and Richard Portes, eds., Macroeconomic Policies in an Interdependent World. Washington: International Monetary Fund, 1989, pp. 311-37.

Decressin, Jorg, and Antonio Fatas, "Regional Labor Market Dynamics in Europe and Implications for EMU," European Economic Review, December 1995, 39, 1627-55.

de Grauwe, Paul and Wim Vanhaverbeke, "Is Europe an Optimum Currency Area?: Evidence from Regional Data." In Masson, Paul R. and Mark P. Taylor, eds., Policy Issues on the Operation of Currency Unions. Cambridge: Cambridge University Press, 1993, pp. 111-29.

Eichengreen, Barry, "Hegemonic Stability Theories of the International Monetary System." In Cooper, Richard N., et al. (eds.) Can nations agree? Issues in International Economic Cooperation. Studies in International Economics series. Washington, DC: Brookings Institution, 1989, pp. 255-98.

Eichengreen, Barry, "One Money for Europe? Lessons from the US Currency Union," Economic Policy, April 1990, 10, 119-86.

Eichengreen, Barry, "Is Europe an Optimum Currency Area?," Cambridge, Mass: National Bureau of Economic Research Working Paper 3579, January 1991.

Eichengreen, Barry, "Labor markets and European Monetary Unification." In Masson, Paul R. and Mark P. Taylor, eds., Policy Issues on the Operation of Currency Unions. Cambridge: Cambridge University Press, 1993, pp. 130-62.

Eichengreen, Barry, and Richard Portes, "The Anatomy of Financial Crises." In Portes, Richard and Alexander K. Swoboda, eds., Threats to International Financial Stability. Cambridge: Cambridge University Press, 1987, pp. 10-58.

Eichengreen, Barry, and Charles Wyplosz, "The Unstable EMS," Brookings Papers on Economic Activity 1, 1993, 51-144.

Folkerts-Landau, David, and Peter M. Garber, "The ECB: A Bank or a Monetary Policy Rule?." In Canzoneri, Matthew B., Vittorio Grilli, and Paul R. Masson, eds., Establishing a Central Bank: Issues in Europe and Lessons from the US. Cambridge: Cambridge University Press, 1992, pp. 86-123.

Frankel, Jeffrey A., and Andrew Rose, "The Endogeneity of Optimum Currency Areas," London: Centre for Economic Policy Research Discussion Paper No. 1473, September 1996.

Goodhart, Charles A. E. "The European System of Central Banks after Maastricht." In Masson, Paul R. and Mark P. Taylor, eds., Policy Issues on the Operation of Currency Unions. Cambridge: Cambridge University Press, 1993, pp. 215-39.

Hartmann, Philipp, "The Future of the Euro as an International Currency, A Transactions Perspective," unpublished paper, 1996, London: London School of Economics.

Kenen, Peter B., "The Theory of Optimum Currency Areas." In Mundell, Robert A., and Alexander A. Swoboda, eds., Monetary Problems of the International Economy, Chicago: Chicago University Press, 1969, pp. 41-60.

Kenen, Peter B., "Sorting Out Some EMU Issues," Reprints in International Finance No. 29, December 1996, International Finance Section, Princeton University.

Krugman, Paul, "Lessons of Massachusetts for EMU." In Torres, Francisco and Francesco Giavazzi, eds., The Transition to Economic and Monetary Union. Cambridge: Cambridge University Press, 1993, pp. 241-69.

McKinnon, Ronald, "Optimum Currency Areas," American Economic Review, 1963, 53, 717-725.

Masson, Paul R. and Mark P. Taylor, "Currency Unions: A Survey of the Issues." In Masson, Paul R. and Mark P. Taylor, eds., Policy Issues on the Operation of Currency Unions. Cambridge: Cambridge University Press, 1993, pp. 3-54.

Masson, Paul R. and Bart Turtelboom, "Characteristics of the Euro, the Demand for Reserves, and Policy Coordination Under EMU," unpublished paper, 1997, Washington, DC: International Monetary Fund.

Mundell, Robert A., "A Theory of Optimum Currency Area," American Economic Review, September 1961, 50, 657-665.

Mundell, Robert A., "EMU and the International Monetary System." In The Monetary Future of Europe. London: Centre for Economic Policy Research, 1993.

Obstfeld, Maurice, "A Strategy for Launching the Euro," unpublished paper, March 1997, University of California, Berkeley.

Padoa Schioppa, Tommaso, "Squaring the Circle, or the Conundrum of International Monetary Reform," Catalyst, a Journal of Policy Debate, Spring 1985, 1.

Pisani-Ferry, Jean, Alexander Italianer, and Roland Lescure, "Stabilization Properties of Budgetary Systems: A Simulation Analysis," European Economy, 1995, 5, 511-38.

Ricci, Luca, "A Model of an Optimum Currency Area," Working Paper 97/76, Washington, DC: International Monetary Fund, 1997.

Sachs, Jeffrey D., and Xavier Sala-i-Martin, "Fiscal Federalism and Optimum Currency Areas: Evidence for Europe from the United States." In Canzoneri, Matthew B., Vittorio Grilli, and Paul R. Masson, eds., Establishing a central bank: Issues in Europe and lessons from the U.S. Cambridge: Cambridge University Press, 1992, pp. 195-219.

Sargent, Thomas J. and Neil Wallace, "Some Unpleasant Monetary Arithmetic," Federal Reserve Bank of Minneapolis Quarterly Review, 1981, 5, 1-17.

Swedish Government Commission on the EMU, EMU - A Swedish Perspective, Amsterdam: Kluwer, 1997.

Thygesen, Niels, "Economic and Monetary Union: Critical Notes on the Maastricht Treaty Revisions." In Torres, Francisco and Francesco Giavazzi, eds., The Transition to Economic and Monetary Union. Cambridge: Cambridge University Press, 1993, pp.9-45.

von Hagen, Jürgen and Barry Eichengreen, "Federalism, Fiscal Restraints, and European Monetary Union," American Economic Review, Papers and Proceedings, May 1996, 86, 134-38.

von Hagen, Jürgen, and Manfred J. M. Neumann, "Real Exchange Rates within and between Currency Areas: How Far Away Is EMU?", Review of Economics and Statistics, May 1994, 76, pp. 236-44.

Weber, Axel A., "EMU and Asymmetries and Adjustment Problems in the EMS: Some Empirical Evidence," London: Centre for Economic Policy Research Discussion Paper: No. 448, August 1990.

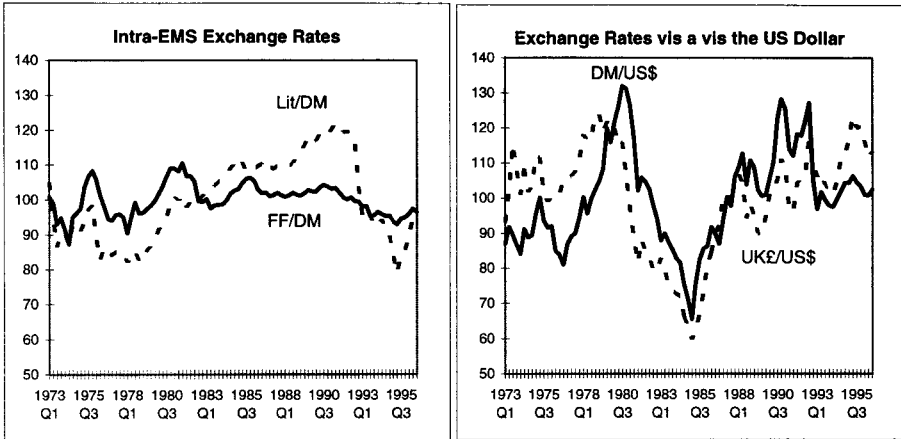
Table 1. The Maastricht Budget Criteria as of mid-1997
(Percent of GDP)

	Budget Deficit (Limit = 3 percent)	Public Debt (Limit = 60 percent)
Austria	3.0*	71.3
Belgium	2.8*	127.2
Denmark	0.0*	66.8
Finland	2.0*	58.1*
France	3.2	57.8*
Germany	3.2	61.8
Greece	5.2	106.9
Ireland	1.2*	69.0
Italy	3.2	123.3
Luxembourg	N.A.	N.A.
Netherlands	2.3*	74.5
Portugal	2.9*	66.3
Spain	3.0*	69.8
Sweden	2.1*	77.3
United Kingdom	2.8*	54.1*

Source: OECD Economic Outlook, June 1997

Note: A * denotes compliance.

Figure 1. Bilateral Exchange Rates



Source: International Financial Statistics

Notes: 100 = average over sample period. EMS started in March 1979.

Italian Lira operated under a margin of fluctuation of +/-6% until January 1990 and left EMS in September 1992.

Sterling was in the system from October 1990 to September 1992, with a +/- 6% margin of fluctuation.

DISCUSSION PAPER SUBSCRIPTION FORM

Subscriptions may be placed for all CEPR Discussion Papers or for those appearing under one or more of the Centre's six research programme areas: International Macroeconomics, International Trade, Industrial Organization, Financial Economics, Human Resources and Transition Economics.

Subscription orders will be invoiced quarterly in arrears. The charge will be determined by the number of papers sent during the preceeding three months. Invoices will be sent on 31 March, 30 June, 30 September and 31 December. New subscriptions must start from one of these dates. If no starting date is specified, the subscription will be started from the beginning of the next period. Papers are charged at the rate of £3 (\$5). Individual academics may obtain papers at the concessionary rate of £2 (\$3). To qualify for this concession, the declaration below (*) must be signed.

Back copies of papers from number 850 are available. For more details, and information on out of print papers contact the Centre.

I wish to place a subscription for:

- International Macroeconomics (IM) Discussion Papers
- International Trade (IT) Discussion Papers
- Industrial Organization (IO) Discussion Papers
- Financial Economics (FE) Discussion Papers
- Human Resources (HR) Discussion Papers
- Transition Economics (TE) Discussion Papers

* I wish to take advantage of the concessionary rate for individual academics. I am affiliated to an academic institution and will finance my subscription personally.

I want my subscription to start: 1 January 1 April
 1 July 1 October

Name _____

Affiliation (if applicable) _____

Address _____

Vat No. (if any) _____

Telephone _____ Fax _____

Signature _____ Date _____

Invoice Address if different from delivery address:

Upon receipt of an invoice payment must be made by the date on the invoice in one of the following methods: (i) Sterling cheque drawn on a UK bank; (ii) Sterling Eurocheque endorsed with your card number; (iii) US Dollar cheque drawn on a US bank; (iv) Credit card (VISA/Access/Barclaycard/Eurocard/Mastercard) – please quote card type, number and expiry date; (v) Bank transfer in Sterling to our bank – please contact CEPR for details of our bank account.

Return this form to 'The Subscription Officer', at the address below.

✂

1525	L A Winters	Regionalism versus Multilateralism	IT	11/96
1526	J Hunt	The Response of Wages and Actual Hours Worked to the Reduction of Standard Hours in Germany	HR	12/96
1527	J Bughin S Vannini	To be (Unionized) or Not to be? A Case for Cost-raising Strategies	IO	12/96
1528	J-P Danthine S Moresi	Front-running by Mutual Fund Managers: It ain't that Bad	FE	12/96
1529	P Martin G I Ottaviano	Growth and Agglomeration	IM/IT	11/96
1530	P De Grauwe	How to Fix Conversion Rates at the Start of EMU	IM	11/96
1531	A L Booth M Francesconi C Garcia-Serrano	Job Tenure: Does History Matter?	HR	1/97
1532	M G Coles	Designing a Cheaper and More Effective Unemployment Benefit System	HR	12/96
1533	J F Francois B McDonald	The Multilateral Trade Agenda: Uruguay Round Implementation and Beyond	IT	12/96
1534	R Winter-Ebmer	Potential Unemployment Benefit Duration and Spell Length: Lessons from a Quasi-experiment in Austria	HR	12/96
1535	W H Buiter	Aspects of Fiscal Performance in some Transition Economies under Fund-supported Programs	TE	12/96
1536	J F Ermisch	Parental Support for Human Capital Investment by Young Adults	HR	12/96
1537	C L Gilbert	Manipulation of Metals Futures: Lessons from Sumitomo	FE	1/97
1538	J Fingleton	Competition among Middlemen When Buyers and Sellers can Trade Directly	IO	12/96
1539	J Fingleton	Competition between Intermediated and Direct Trade and the Timing of Disintermediation	IO	12/96
1540	R Faini F Daveri	Where do Migrants Go? Risk-Aversion, Mobility Costs and the Locational Choice of Migrants	HR	12/96
1541	K M Schmidt M Schnitzer	Methods of Privatization: Auctions, Bargaining and Give-Aways	IO/TE	1/97
1542	K M Schmidt	The Political Economy of Mass Privatization and the Risk of Expropriation	TE	1/97
1543	A de la Fuente	On the Sources of Convergence: A Close Look at the Spanish Regions	IM	12/96
1544	L Persson H Horn	Endogenous Mergers in Concentrated Markets	IO	12/96
1545	J Corbett D Hay H Louri	Inventory Behaviour: A Comparative Study of UK and Japanese Firms	IO	1/97
1546	G M Grossman E Helpman	Competing for Endorsements	IT	12/96

Centre for Economic Policy Research
25–28 Old Burlington Street, London W1X 1LB