

# EUROPEAN MONETARY UNIFICATION: *A TOUR D'HORIZON*

BARRY EICHENGREEN  
*University of California, Berkeley*<sup>1</sup>

*This article takes stock of the literature and debate over European monetary unification. In contrast to other papers, where it is argued that the issues and prospects remain shrouded in uncertainty, I argue that in a number of important areas, a reasonable degree of consensus now exists, as the result of a decade of scholarship. The subsequent stock-taking concentrates on areas where significant questions remain, starting with the implications of surrendering the exchange rate and an independent national monetary policy as instruments of adjustment; the conduct of fiscal policy under the Excessive Deficit Procedure and the Stability Pact; and how quickly the European union is likely to develop an EU-wide system of fiscal federalism to accompany its monetary union. Turning from fiscal to monetary issues, I ask whether the European Central Bank (ECB) will be as inflation averse as the Bundesbank, what exchange-rate policy the ECB will pursue, and whether the euro will be a leading reserve currency. I conclude with what may be the most contentious issue of all, namely whether Europe's monetary union could collapse after it begins.*

## I. INTRODUCTION

For European monetary unification, this is the point of maximum anticipation, as the audience falls silent, the actors hold their breath, and the curtain starts to rise. What is true for officials is true also for academics: they have not fallen silent, to be sure, but they have increasingly turned their attention to this stage. This would seem an opportune time to take stock of the literature and anticipate future directions.

In a number of areas, a reasonable degree of consensus now exists as the result of a decade of scholarship. My own stock-taking concentrates instead on areas where significant questions remain. I start in section II with the implications of surrendering the exchange rate and an independent national monetary policy as instruments of adjustment. The focus here, inevitably, is on labour markets, and on the extent to which wage flexibility and labour mobility can substitute for the forgone instruments. Section III considers the conduct of fiscal policy

<sup>1</sup> An early draft of this paper was completed while the author was affiliated to the International Monetary Fund, whose views those in this paper naturally do not represent. He thanks Alessandro Prati for helpful comments.

under the Excessive Deficit Procedure and the Stability Pact, asking how constrained automatic fiscal stabilizers and discretionary counter-cyclical fiscal stabilization will be. In section IV I ask how quickly the European Union (EU) is likely to develop an EU-wide system of fiscal federalism to accompany its monetary union.

Sections V–VII turn from fiscal to monetary issues. Section V asks whether the European Central Bank (ECB) will be as inflation-adverse as the Bundesbank, section VI what exchange-rate policy the ECB will pursue, and section VII whether the euro will be a leading reserve currency. Section VIII raises what may now be the most contentious issue of all, namely, whether Europe's monetary union could collapse after it begins.

To repeat, throughout this paper I concentrate on issues where significant disagreement remains. While it is not possible to offer definitive answers to all the questions raised, posing a series of open questions and offering tentative answers at least has the merit of pointing to an agenda for research.

## II. SURRENDERING THE EXCHANGE RATE AS AN INSTRUMENT OF ADJUSTMENT

Monetary unification means abandoning the exchange rate and independent national monetary policies as adjustment mechanisms within the monetary union. Unless other adjustment mechanisms take up the slack, serious economic imbalances and political tensions could arise. The classic Mundellian alternative is greater labour-market flexibility in the form of both wage adjustments and worker mobility. Wage flexibility is hardly a European strength, to put an understated gloss on the point. From this perspective, the fact that labour is less mobile in Europe than in the United States is disturbing. This fact is widely cited by sceptics of the advisability of Europe's monetary union project (see, *inter alia*, Feldstein, 1997a). Migration has a path-dependent character: statutory barriers that have stifled it in the past will also discourage it in the future—and continue to do so even once they have been removed—insofar as they slow the development of expatriate networks and support greater cultural and linguistic diversity than is characteristic of monetary unions

such as the United States. Couple this with the fact that wage flexibility is less than in North America, and one is left with only one adjustment mechanism, namely, changes in intra-European exchange rates.

The idea that Europe needs to rely more on exchange-rate flexibility because it lacks labour mobility rests, of course, on the assumption that exchange-rate flexibility is effective. But if real wages are rigid—that is, money wages respond quickly to the change in the exchange rate—then Europe's low level of labour mobility is not a compelling argument against giving up the exchange-rate instrument. Indeed, the revealed preference of European countries not to use monetary-cum-exchange-rate policy as an instrument of adjustment suggests that they harbour doubts about its efficacy.

The counter-argument is that policy-makers' reluctance actively to utilize the exchange-rate instrument reflects political rather than economic considerations, and in particular their strategy of using exchange-rate-stabilization agreements as a device for propelling forward the integration process. Europe's revealed preference, by this interpretation, is to avoid causing political disruptions through active use of the exchange rate; it is not an indication that exchange-rate changes are ineffective for adjustment purposes.

Strikingly, this question, perhaps the most fundamental of all entries on the cost side of the EMU ledger, has yet to be definitively answered. How much stabilization capacity Europe is sacrificing remains uncertain even at this late date. Anecdotal evidence from the 1990s, when Italy and the United Kingdom withdrew from the Exchange Rate Mechanism (ERM), is frequently invoked to suggest that exchange-rate changes retain their power. However, Bergin and Moersch (1997) have cast doubt on this conclusion. While confirming that those countries which depreciated their currencies boosted their exports, they do not find that this relatively rapid export growth translated into faster overall economic growth.

Gordon (1998) offers a solution to this puzzle: that countries which depreciated their currencies after 1992, Italy, Spain, Finland, and Sweden prominent among them, took the opportunity also to cut their budget deficits. Currency depreciation boosted ex-

ports and stimulated growth, other things equal, but insofar as governments took advantage of the incipient acceleration of growth to cut their deficits, they further curtailed domestic demand. With little perceptible acceleration in inflation relative to countries with unchanged ERM parities, there was a shift in relative prices toward traded goods in countries which depreciated their currencies and a surge in exports, but no acceleration in growth owing to the compensatory compression of the budget deficit. (The one country that does not fit this schema is the United Kingdom, where no dramatic Italian-style budgetary retrenchment was required, but there the business cycle was out of phase with that of Continental Europe: recovery had begun earlier and decelerated at roughly the same time when the other countries depreciating their currencies felt the export surge.) The implication is that intra-European exchange rates retain some capacity to stabilize the economies of the member states if governments only permit them to operate.

An objection to the sceptics' emphasis on Europe's low level of labour mobility is that mobility is low *within*, not just *between*, European countries. OECD (1990) notes that 3 per cent of Americans change their region of residence annually, but that the same is true of only 0.6 per cent of Italians and 1.1 per cent of Britons and Germans. The same cultural and linguistic diversity that works to discourage cross-national migration would also appear to discourage intra-national migration. But this low level of mobility within European countries has not posed a threat to the viability of their national monetary unions. If mobility is low within France but the French monetary union still functions perfectly adequately, the question then becomes, why should the same not be true of Europe?

The answer, according to the EMU sceptics, is that the low level of mobility within European countries reflects an absence of asymmetric, region-specific shocks. Little migration is observed, not because there are barriers to mobility, but because there is little incentive to move. However, a number of studies have cast doubt on this hypothesis. Viñals and Jimeno (1996) find that two-thirds of the conditional variance of regional unemployment rates within European countries is due to region-specific factors. Forni and Reichlin (1997) attribute less

importance to region-specific disturbances but still conclude that the contribution of such shocks—and the incentive to migrate—is as great within European countries as within the United States. Structural models (Eichengreen, 1993) and vector autoregressions (Obstfeld and Peri, 1997) suggest that labour is simply less responsive to wage and unemployment differentials than in the United States.

Alternatively, Europe's low level of mobility may reflect not cultural and linguistic obstacles but an extensive system of inter-regional transfers which limits the incentive to move for residents of Europe's low-productivity, high-unemployment regions. North-South transfers within Italy are the most prominent example, but the phenomenon is general. The same tendency exists within North America: inter-regional redistribution is greater in Canada than in the United States (Bayoumi and Masson, 1995), and inter-regional mobility is correspondingly lower (Obstfeld and Peri, 1998). This is another channel for path dependence: the absence of expatriate networks has helped to sustain local cultures, leading voters to support inter-regional transfers in order to prevent their cultural distinctiveness from being diluted by immigration.

Persistence does not mean stasis. However low mobility may have been in the past, it should be higher in the future. This is obvious to the apostles of the Lucas Critique: once there no longer remains the option of exchange-rate changes to facilitate adjustment, workers and unions will recognize the need to substitute greater labour-market flexibility (Wijkander, 1997). And authors such as Alogoskoufis and Smith (1991), looking across exchange-rate regimes, tend to confirm the existence of greater nominal wage flexibility when exchange rates are fixed than when they are flexible. The need for greater wage flexibility is, of course, prominent in the policy debate, and baby steps have already been taken in this direction. The Schengen agreement to remove border controls and the portability of pensions will encourage mobility, however modestly, and promote the creation of expatriate networks. The homogenizing influence of the media and the spread of English-language skills should loosen the hold of cultural specificity. European economists will be aware of the tendency for their colleagues to respond to the lure of attractive positions in academia

or the financial sector in countries other than their own. Such observations suggest that mobility is relatively high among skilled workers, even if union rules, apprenticeship programmes, and training schemes limit it among the unskilled. Mauro and Spilimbergo (1998) confirm this directly: using data on migration between Spanish regions disaggregated by level of education, they find that migration is high for the high-school and college educated but low for the illiterate and primary-school educated, among whom unemployment and declining participation rates take up most of the slack in response to a negative employment shock.

The question is how soon we will observe further increases in labour-market flexibility. Here too, the jury is still out. The authors of a number of country case studies—Hochreiter and Winckler (1995) on Austria, Kremers (1990) for Ireland, Gressani *et al.* (1988) for Italy, and Artis and Salomon (1996) for France, for example—do find some evidence of greater wage and price flexibility with the hardening of the government's exchange-rate commitment. Cross-country econometric analyses are less uniformly supportive of the existence of a significant exchange-rate–wage–flexibility link. Artis and Omerod (1991) estimate wage equations for the leading ERM countries but find only modest evidence of a structural break around the advent of the European Monetary System (EMS). In a follow-up study (Artis and Omerod, 1996) for a longer period, which can distinguish the less credible pre-1988 EMS from the 'New EMS' of the post-1988 years, they find limited evidence of an EMS effect, most notably for Belgium. Anderton and Barrell (1995) report the results of a statistical study of ten European countries, concluding that, with the exception of Italy, there is not much evidence of an EMS-related structural shift in the wage-determination process. It remains to reconcile these findings.

### III. FISCAL POLICY UNDER THE EXCESSIVE DEFICIT PROCEDURE AND THE STABILITY PACT

Fiscal policy may be the aspect of monetary union on which consensus remains most elusive. On one side are those who argue that a European country which ties its monetary hand behind its back should

keep its fiscal hand free. Having abandoned the exchange rate and an independent national monetary policy as instruments of adjustment, it is essential that it retain its fiscal flexibility.

On the other side are those who insist on the need for the close coordination of fiscal policies within the monetary union and, by implication, for restraints on fiscal autonomy. A popular justification for such restraints is as protection for the ECB from pressure to extend an inflationary debt bail-out. If the government gets into fiscal trouble and neighbouring EMU countries experience negative repercussions, this argument goes, the ECB may feel compelled to buy up the bonds of the government in distress, with inflationary consequences monetary-union wide.

What this thesis ignores is that when sub-central governments control their own tax instruments rather than relying for their revenues on transfers from the centre, they possess a third possible response to debt problems (in addition to default and obtaining a central-bank bail-out), namely, raising their own taxes. Given the existence of this alternative, the central authorities should be able to commit themselves to not extending a bail-out. The fact that countries in which subcentral governments collect the bulk of their own revenues typically do not limit the fiscal freedom of the latter is consistent with this view (von Hagen and Eichengreen, 1996). And, absent the development of an EU-wide system of fiscal federalism (see section IV), this is the vertical fiscal structure that will continue to prevail in Europe.

A second popular rationale for fiscal restraints is to neutralize inflationary pressure more generally. The ECB, concerned with the efficiency of the European economy, will in this view seek to balance the deadweight cost of inflation against the deadweight cost of other taxes. If governments participating in the monetary union run large deficits and accumulate large debts, the ECB will have an incentive to run more inflationary policies to minimize the efficiency losses associated with other taxes, undermining its commitment to price stability (De Grauwe, 1996).

At the same time, there are reasons to question that the ECB will simply apply the one-period Ramsey

Rule, raising the inflation tax in line with the other taxes. It will be engaged in a multi-period game in which it seeks to convince governments and the markets of its commitment to price stability, even if doing so entails short-term deadweight losses. If it refuses to inflate, governments will find the deadweight cost of taxation to be higher, and they will adapt their behaviour accordingly (Chari and Kehoe, 1997). It is not clear, in other words, that the ECB will play Stackelberg follower to the government's lead in a series of one-shot games.

A third rationale for fiscal restraints is to internalize cross-border interest-rate spill-overs. National policy-makers, in this view, have inadequate incentive to take into account the impact of their borrowing on interest rates in other member states. Excessive borrowing in one country will therefore drive up the level of interest rates monetary-union wide. The problem with this argument is that European countries borrow on world financial markets, not on European financial markets. Italy may be large relative to Europe, but it is small relative to global capital markets. It is hardly plausible that a single medium-sized country can drive up the level of interest rates world-wide. And as the globalization of financial markets proceeds, it will become still less likely that European capital markets will remain significantly segmented and that interest-rate spill-overs will be limited to one continent.

A final rationale for the fiscal restrictions of the Maastricht Treaty is to encourage policy coordination more generally. It is desirable that national fiscal policies be coordinated (for reasons such as those given in the preceding paragraph) and that monetary and fiscal policies be harmonized (to prevent a bad policy mix of loose fiscal and tight monetary policies from leading to a chronically overvalued real exchange rate). But most (in deference to the editors of this special issue, one should acknowledge not all) empirical studies of policy coordination suggest that the benefits are slight. Oudiz and Sachs (1984) reach this conclusion for the major industrial countries, Masson and Taylor (1993) for the European Union. Moreover, there is the danger that the Excessive Deficit Procedure and the Stability Pact, by limiting the flexibility of national fiscal policies, may actually impede the coordination of policies. Numerical deficit ceilings are a blunt instrument, in other words, for addressing this problem.

If these are the benefits of fiscal restrictions, the corresponding danger is that they will weaken the operation of automatic fiscal stabilizers and discretionary policy. In assessing the realism of this fear, it is important to be clear on what the Stability Pact entails. It consists of two Council regulations—one on the Excessive Deficit Procedure and one on surveillance—and a European Council resolution which provides guidance to the Council and member states on the application of the pact. The Council regulations clarify the meaning of the Excessive Deficit Procedure, elaborating the clauses referring to exceptional and temporary circumstances under which the 3 per cent reference value for the general government budget deficit can be exceeded without a determination that the deficit is excessive. In addition, they commit participants in the monetary union to the medium-term objective of budgets that are balanced or close to balance.

A country can escape a determination that its deficit is excessive and avoid having to make non-remunerated deposits if its real GDP declines by at least 2 per cent in the year in question. A recession in which GDP declines by less than 2 per cent but more than 0.75 per cent may also qualify with the concurrence of the Council. The Commission will receive definitive data on a country's deficit in year  $t$  around March of year  $t+1$ . The government will then have to take corrective action to prevent the excess from persisting into year  $t+2$ . If no such action is taken by the end of year  $t+1$ , non-remunerated deposits will be required. But since it is the deficit in year  $t+2$  that must conform to the requirements of the treaty, 2 successive years of excess can occur without penalty. Moreover, the passage in which it is stated that excessive deficits should be corrected no later than the year following the identification of the excess ends with the qualifying phrase, 'unless there are special circumstances'. Presumably a country such as Finland, which suffered budgetary difficulties in the early 1990s owing to the collapse of the Soviet Union, would be allowed to invoke this clause.

How binding these provisions turn out to be will depend on countries' proximity to the 3 per cent ceiling when a slow-down strikes. If governments have balanced budgets or surpluses, they will have more room for manoeuvre. In the seven deepest recessions experienced in the OECD in the last 30 years, deficits widened by a bit over 6 per cent of

GDP for 2 years (Eichengreen and Wyplosz, 1998). Thus, 3 per cent surpluses in normal times would be sufficient to accommodate even the largest recessions, although assuming 3 per cent surpluses involves an element of wishful thinking. In any case, the largest recessions will qualify as exceptional circumstances. This makes it more interesting to consider a deficit that may not so qualify, of, say, 1.75 per cent of GDP. OECD (1996) suggests that if growth declines by 1.75 per cent for 2 years rather than rising by 2.25 per cent per annum (as needed to keep the deficit from growing), the 4 per cent swing will cause an increase in the budget deficit of a bit less than 4 per cent of GDP. Thus, a 1 per cent surplus will still suffice to accommodate this swing, even if exceptional circumstances are not granted. European Commission (1997) makes the same point: it analyses 24 severe recessions, defined as episodes of negative growth of GDP of 0.75 per cent or more, finding that output gaps widened on average by 5.5 percentage points, while actual budget deficits increased by 3.5 percentage points of GDP.

But if countries are already up against the 3 per cent limit when the recession strikes, they will not be able to increase their deficits so freely. How much difference would this make? Bayoumi and Eichengreen (1995) use the IMF's MULTIMOD model to show that automatic stabilizers reduce the first-year effect of a 5 per cent reduction in the marginal propensity to consume on real GDP by as much as half. With automatic stabilizers, output falls by 2.8 per cent; without them it falls by 3.2–4.6 per cent (depending on whether cuts in government consumption or increases in net taxes are used to close the budget gap). This conclusion is supported by Sorensen and Yosha (1997), who consider the impact on consumption rather than output. Although their point estimates of the stabilization effect are more modest, they find that between 40 and 50 per cent of shocks to output are smoothed by EU countries in the sense of not showing up in consumption. Half of this smoothing takes place through changes in government saving and dissaving at the national level. Allsopp *et al.* (1997) also provide similar estimates.

Simulations of a small structural model in Eichengreen and Wyplosz (1997) similarly suggest that less counter-cyclical fiscal action will mean larger out-

put gaps and slower growth. The difference in any given year is small—no more than a fraction of a percentage point of growth on average over the business cycle—but even small growth effects can cumulate into large changes in levels if they persist for decades. Simulations for the period 1974–95 suggest output losses of 5–9 per cent owing to the imposition of Stability-Pact-like ceilings.

#### IV. FISCAL FEDERALISM

The debate over the need for fiscal federalism to accompany the monetary union has swung from one extreme to the other. The early view (as in the MacDougall Report, 1977) was that a smoothly functioning monetary union requires the stabilization provided by a federal fiscal system. Ingram (1959) had already documented the operation of this mechanism in the United States. Sala-i-Martin and Sachs (1992) lent econometric rigour to his case, estimating that changes in taxes and transfers paid to and received from the federal government by the states offset 30–40 per cent of declines in state incomes. The implication was that Europe would find it difficult to operate a monetary union so long as it failed to develop comparable mechanisms of fiscal federalism, especially insofar as other means of adjustment, notably wage flexibility and labour mobility, were absent.

Subsequent authors revised downward Sala-i-Martin and Sachs' estimates. They emphasized that these early results did not distinguish equalization (ongoing transfers from high- to low-income regions) from stabilization (increases in transfers when one region suffers a decline in income relative to another). The first to attempt to do so was von Hagen (1992), who examined year-to-year changes in incomes, taxes, and transfers to get at the stabilization effect, and long-period averages to get at the equalization effect. For the United States he estimated the extent of stabilization to be less than a third of that reported by Sala-i-Martin and Sachs, while his estimated redistribution effect was nearly 50 cents on the dollar. His approach was extended to Canada by Bayoumi and Masson (1995), who found a stabilization effect for the United States of 31 per cent, quite similar to Sala-i-Martin and Sachs' original estimate (but different from von Hagen's

because these authors analyse personal income rather than gross state product), and a redistribution effect of 22 cents. For Canada, where regional equalization is a constitutional principle, the proportions are reversed: redistribution is 39 per cent, stabilization 17 per cent. Obstfeld and Peri (1998), using a vector autoregression (VAR) methodology, confirm Bayoumi and Masson's estimates of the magnitude of stabilization for Canada, but their estimates for the United States are closer to the more modest figures reported by von Hagen. Thus, the emerging consensus appears to be that the original Sala-i-Martin and Sachs estimates should be regarded as upper bounds.

This suggests that the automatic stabilization conducted by the member states of the European Union offsets roughly the same share of local income shocks as is neutralized by fiscal federalism within the United States. The implication is that there is no need for a European system of fiscal federalism so long as member states' automatic stabilizers are allowed to operate. But if these are disabled, there may arise pressure for fiscal federalism, as national governments plump for a union-wide system to provide the stabilization they are prevented from providing themselves (von Hagen and Eichengreen, 1996).

Which alternative is preferable? Recent authors, emphasizing the advantages of subsidiarity, stress the drawbacks of EU-wide fiscal federalism. Méritz and Vori (1992) note that shocks to real per-capita GDP are positively correlated across member states, limiting the potential for mutual insurance. Méritz (1994) argues further that unemployment-based co-insurance would benefit only a small number of European workers. In addition, a programme under which member states with high unemployment are rewarded by budgetary transfers from their EU partners will be a source of moral hazard. These transfers would have to come with strong conditions attached to prevent countries from succumbing to the incentive to pursue risky macroeconomic strategies that maximize growth in certain states of the world but aggravate unemployment in others. If some countries are particularly prone to this form of moral hazard, they may be ongoing recipients of intra-EU transfers. Unlike the Structural Funds, to which countries lose access when their incomes approach the EU average, there would arise the

prospect of such transfers continuing indefinitely, which might threaten, rather than bolster, EU solidarity.

## V. WILL THE ECB BE AS PRICE-STABILITY-ORIENTED AS THE BUNDESBANK?

Popular discussion continues to focus on whether the ECB will take to heart its mandate to pursue price stability. The statute of the European System of Central Banks singles out price stability as the paramount goal of policy. Yet it also makes the ECB responsible for the stability of the payments and financial systems. And the new central bank will surely come under pressure to reduce interest rates when growth slows, even if doing so conflicts with the pursuit of low inflation. The politicization of the selection of the founding president of the central bank and the creation of a Euro-11 committee of finance ministers to serve as a political counterweight to the monetary technocrats of the central bank board are two not-so-subtle reminders of this danger.

The stability orientation of the ECB is not something that can be predicted before the fact. But the outcome will provide evidence on the explanatory power of two views of monetary policy-making. One view is that central banks are mere political sounding boards. The ECB will come under pressure to represent the interests of the participating countries, and since other countries are less price-stability-oriented than Germany, the ECB will focus less narrowly on this goal than the Bundesbank. The greater the aversion of constituents to instability in output and employment, the greater the pressure they will bring to bear on the central bank, and the less will be the credibility of the latter's commitment to price stability (Alesina and Grilli, 1992, 1994). Hence, the larger the monetary union and the more lax the enforcement of the Excessive Deficit Procedure and the Stability Pact, the more inflationary monetary policy will be. In particular, because other EU countries will enter EMU with heavier debts than Germany and will not inherit the latter's culture of price stability, the ECB is likely to follow more inflationary policies than the Bundesbank.

The other view is that central bank policies are a function of institutional structure. In particular, insti-

tutional independence insulates a central bank from pressure to pursue goals other than price stability. Grilli *et al.* (1991) distinguish political and economic independence. Economic independence increases when the central bank is not authorized to provide monetary financing of the budget deficit, when it sets its own discount rate, and when there are no constraints on the composition of its asset portfolio. Political independence increases when new governments are not automatically entitled to appoint new central bank governors or board members, when the latter serve long terms in office, when the government does not participate in or approve monetary policy decisions, and when the central bank statute gives priority to price stability. By the calculations of these authors, the Dutch and German central banks have been the most independent politically, while the Bundesbank is most independent economically. (Some statutory provisions have changed subsequently, since the Maastricht Treaty requires countries preparing for EMU to buttress the independence of their national central banks.) Alesina and Grilli estimate that the ECB will be as independent as the Bundesbank, not surprisingly since its statute is patterned after that of the German central bank.

Two qualifications should be noted. One is that the Euro-11 committee may inject political considerations into monetary policy-making in ways that are yet to be seen. Euro-11 may be nothing but a coffee klatsch of finance ministers, but their ability to pressure the ECB will presumably be greater when they speak with a single voice. Working in the other direction is the fact that calculations of political independence do not take into account the central bank's political accountability (Cooper, 1992). The German Bundesbank may have the independence to choose its monetary tactics, but if these are viewed as fundamentally incompatible with the priorities of its political constituency, the government can threaten to revoke or scale back its independence. The ECB is subject to no analogous threat, since its statute is embedded in an international treaty which can be changed only with the consent of all 15 national signatories. Kenen (1995) attaches rather more importance to the fact that the President of the Council of Ministers and a member of the Commission will participate (but not vote) in the meetings of the Governing Council of the ECB,

and to the fact that the President of the ECB must present an annual report to the parliament, which will then debate it, as well as to the Council.

Thus, Stage III will provide a test of whether the institutional or the pressure-group model has more explanatory power.

## VI. WHAT EXCHANGE-RATE POLICY FOR THE ECB?

There is some confusion about how the ECB will manage the exchange rate of the euro against other major currencies. Article 109 of the Maastricht Treaty empowers the Council of Ministers, acting by qualified majority, to adopt general orientations for exchange-rate policy *vis-à-vis* non-EU currencies. It does not stipulate how general those orientations must be, however, or how regularly they might be issued. Nor does Article 109 provide a mechanism that would make the Council's orientations binding on the ECB. It only specifies that those orientations must not jeopardize price stability without indicating who will decide whether jeopardy exists.

In contrast, the power to decide whether the euro will be part of a system of pegged exchange rates for the industrial countries, as suggested by Volcker (1995), or a global system of target zones, à la Williamson (1985), resides not with the ECB but with the Council of Ministers. The Council must act unanimously after consulting with the ECB and attempting to reach a consensus on the compatibility of its decision with price stability. In this case the Council's decision will bind the ECB.

What kind of exchange-rate policy will the ECB be inclined to pursue? With the creation of an economic and monetary union, the EU will become more of a large, relatively closed economy, like the United States. The bulk of member-state commercial and financial transactions already take place with other member states. Theories suggesting a further expansion of transactions within the integrated economic zone imply that this will be even more true in the future. Exchange-rate fluctuations *vis-à-vis* the rest of the world will then become less disruptive. According to the theory of optimum currency areas

and the associated evidence (Bayoumi and Eichengreen, 1997), such a relatively large, closed economy should be inclined to float its currency.

Moreover, the ECB in its early years will be reluctant to commit itself to concerted foreign-exchange-market intervention, given the need to establish the credibility of its commitment to price stability. Excessive interest in other targets, including the exchange rate, might be seen as calling that commitment into doubt (European Monetary Institute, 1997). This implies that the Governing Board will be inclined toward a stringent interpretation of Article 109, rejecting the Council's general orientations when these seem incompatible with price stability. This point applies with even greater force to schemes for pegged exchange rates or G-3 target zones. While the ECB would be bound by the Council's decision to participate in such a system, the possibility that its Board might object in a way that damaged the Council's reputation for financial probity, not to mention the viability of the exchange-rate agreement itself, would give the ECB at least potential veto power (akin to the Bundesbank's sway over the German chancellor).

These are the standard arguments for why the ECB will be inclined to follow policies of benign neglect toward the euro-dollar and euro-yen exchange rates. What they leave out is the exchange rate as a gauge of monetary policy. At the beginning of Stage III, the value of alternative measures of the stance of policy will not be clear. There will be shifts in the demand for various monetary aggregates, loosening further the already-loose link between the growth of the money supply and the rate of inflation (Begg *et al.*, 1997a). Such shifts are part and parcel with the inauguration of a new monetary regime, and what is Stage III but a new regime? Similarly, insofar as monetary unification is accompanied by changes in financial structure (as banks and other intermediaries capitalize on the opportunities afforded by integration), the links between interest rates, inflation, and other variables are likely to shift (Ramaswamy and Sloek, 1997). Uncertainty about these links may force the ECB to attach less weight to intermediate targets and more to indicators of the ultimate objectives of policy.

Insofar as any newly created index of inflation for the euro zone will be subject to more than the usual

degree of imprecision, this may mean attaching greater weight to fluctuations in the exchange rate. Market participants as well as members of the ECB's Governing Board could be so inclined. A significant depreciation of the euro could then be seen as casting doubt on the credibility of monetary policy. The argument should not be pushed too far, for the exchange rate will be only one of several useful indicators. But neither is it likely to be disregarded.

The more volatile the exchange rate, the more inclined will the ECB be to intervene in the foreign exchange market. Some have expressed concern that Europe's exchange rates *vis-à-vis* the rest of the world will grow more volatile with the advent of EMU (*viz.* Benassy-Queré *et al.*, 1997). Prevent European exchange rates from moving, in this view, and the same shocks to global markets will have to be vented through movements in the exchange rates between the euro and other currencies. In the worst-case scenario, the dollar-euro rate will behave as erratically as the yen-dollar rate.

This argument ignores the fact that policy-makers themselves create many of the shocks that disturb foreign exchange markets. The yen exchange rate has been erratic because policy in Japan has been erratic. Japanese policy in the 1980s created an asset-price bubble which, upon bursting, left behind a banking crisis. To cope with the consequences, the Japanese authorities reduced interest rates to zero. It is hardly surprising that this series of policy steps and missteps has resulted in wide fluctuations of the yen-dollar exchange rate.

Thus, how erratically the dollar-euro rate behaves will depend first and foremost on whether the Federal Reserve System and the European Central Bank commit similar policy mistakes. There being no a-priori reason for pessimism, there is no reason to anticipate euro exchange rates as volatile as the historical yen-dollar rate.

## VII. THE EURO AS A RESERVE CURRENCY

When the European Central Bank comes into operation in 1999 and the single currency is issued in 2002, shifts will occur in the reserve portfolios of

central banks. While the euro will loom larger in foreign-exchange reserves than what is currently Europe's dominant reserve currency, the Deutschmark, how much more important it will become and how quickly it will become more important remain to be seen. Bergsten (1997), for one, argues that since EMU will create an integrated monetary and financial zone larger than the United States, the euro will quickly rival and perhaps even surpass the dollar as the leading reserve asset in central bank portfolios.

Other arguments suggest more caution regarding the euro's prospects. In particular, history suggests that an incumbent international currency, like an incumbent politician running for re-election, has a built-in advantage (Ilzkovitz, 1996; Eichengreen, 1997). It pays for central banks to hold their foreign exchange reserves in a currency that is widely used for settling international financial transactions; that is, in a currency in which the markets are liquid and stable. It follows that it will pay for them to hold their reserves in the same currencies held by other central banks and international investors. This network externality lends inertia and path dependence to the development of reserve-currency status. The point is illustrated by the continued importance of the pound sterling as a reserve, vehicle, and invoicing currency well after Great Britain's dominance of international financial and commodity markets had passed.

If the attractions of the euro as a reserve currency will turn on how widely it is used in international transactions more generally, the latter will depend on whether Europe comes to rival the United States as a financial centre. And this may itself hinge on the scope of the responsibilities assumed by the European Central Bank. It is assumed, in line with Bundesbank practice, that the ECB will engage in relatively limited day-to-day liquidity management (Folkerts-Landau and Garber, 1992). Following the Bundesbank, it will provide refinancing to the private sector perhaps once a week, using reverse transactions (repos). While such periodic transactions are appropriate for bank-based financial systems in which the inter-bank market can be relied on to match financial institutions with excess demands and supplies of liquidity, securitized financial systems are characterized by more generalized excess supplies and demands. The consequent volatility of overnight rates will greatly widen bid-ask spreads

and reduce the attractiveness of transacting in the European market (Schnadt, 1994). Preventing such spikes in overnight rates requires continuous liquidity management by the central bank, not just periodic intervention.

In addition, the depth, breadth, and stability of the market will depend on the extent of last-resort lending by the central bank. The Maastricht Treaty does not make provision for last-resort lending and bank supervision by the ECB. It adopts the Continental European model in which the responsibility for bank supervision and support is separated from monetary policy and assigned to an agency under the control of the Ministry of Finance.

To quote Article 25, 'the ECB *may offer advice and be consulted* by the Council, the Commission, and the competent authorities of the EU countries on the scope and implementation of Community legislation relating to the prudential supervision of credit institutions and the stability of the financial system' (emphasis added). But while the ECB will propose, the national authorities will dispose. It is they who will design and implement supervisory and regulatory policies.

In bank-based financial systems, such as those of Continental Europe, there is a logic to separating monetary policy from bank supervision. Doing so insulates the central bank from lobbying by influential financial institutions. And where finance is bank based, there is less need for the central bank to inject liquidity to prevent financial markets from seizing up. To be sure, it may still be necessary to prevent problems in individual banks from setting off system-wide panics, but there exist a variety of instruments for containing the impact of isolated banking problems, notably lifeboat operations by the banks themselves and recapitalization by the fiscal or supervisory authorities.

In countries with highly securitized financial markets, in contrast, the central bank has repeatedly acted as lender of last resort. The implication is that securitized financial systems, to be stable in the face of sudden movements in asset prices, need a governmental authority with the ability to backstop the market. This is the case in both the USA and the UK, where securitized finance is well advanced. But the Maastricht Treaty says little about the

ECB's responsibilities in this connection. Admittedly, it gives the ECB responsibility for promoting the 'smooth operation' of the payments system. But how will problems in that system be detected if the ECB lacks supervisory responsibility? Will the ECB be prepared to provide liquidity to financial institutions if it lacks timely information on whether they are facing liquidity or solvency problems and has no basis on which to value the collateral against which banks (including central banks) traditionally lend?

European policy-makers are aware of these issues. The question is whether, once Stage III begins, the ECB will become more responsive to the needs of Europe's capital markets. One answer is yes — that political imperatives to model the ECB's operating procedures on those of the Bundesbank will become less powerful once monetary union is a *fait accompli*. Once German participation in the monetary union is no longer at issue, it may be possible for central banks and officials to make known their preference for a different model.

But another answer is no, that the ECB will not move over time towards more active liquidity management and backstopping operations, because its initial approach to monetary policy and the structure of European financial markets will become locked in. The dominance of bank-based finance will encourage the ECB to cater to the needs of a bank-based financial system, which do not include the liquidity-management and backstopping functions required by securities markets. As a result, bank-based finance will retain a comparative advantage relative to securitized finance, and the consequent persistence of the bank-based system will encourage the ECB to stick to its initial approach, in a classic case of a positive feedback loop. If so, the convergence of the Anglo-American and Continental European financial systems could turn out to be much less dramatic than sometimes supposed.

Given these uncertainties, reserve holders will wait and see. In the words of Joseph Yam of the Hong Kong Monetary Authority (quoted by Reuters on 19 January 1998), 'It will take time for the Euro to become a liquid currency. . . . We need to see whether the market develops in line with our expectations. At that time, it should not be too late for us to decide how we should manage our reserves.'

## VIII. THE COLLAPSE OF EMU

Until recently, the prospect of creating a European monetary union was sufficiently remote that discussion focused on the prospect of it starting, not that it might collapse once it began. Now that Stage III is a certainty, discussion has turned to the latter question. In fact, there is no shortage of monetary unions which have disintegrated: these include the successor states of the Austro-Hungarian Empire (Dornbusch, 1991), the successor states of the former Soviet Union (Bofinger and Gros, 1992), and the successor states of the former Czechoslovakia.

These are all cases where the decision to file for a political divorce led to the decision to go for a monetary divorce. In each case the successor states of a political union sought to reassert their policy autonomy. Different political and economic objectives from their former partners implied the desire for different monetary policies. And given the destruction of the political institutions that had bound them together, there existed neither mechanisms for reconciling those divergent views nor means for extending compensatory side payments.

Feldstein (1997*b*) has raised the spectre of similar problems in Stage III. EU member states with very different preferences will be shackled to one another by a single monetary policy. There will be no political union at the outset. National leaders will continue to plump for policies that reflect the preferences of their national constituencies. Inevitably, some will be disappointed. And since Europeans are unlikely to accede to large-scale cross-border transfers prior to the creation of a real political union (Eichengreen, 1996), there will be no way of compensating the losers. Disagreement over the stance of monetary policy could then mean serious dispute.

Technically, it is straightforward to exit a monetary union: a government need only start up the presses and resume printing its national currency. (It would also have to take a number of book-keeping steps, such as authorizing its banks to offer domestic-currency-denominated deposits, requiring the payment of taxes in domestic currency, and so forth. This means that it may be slightly easier to exit during Stage IIIA, when national currencies continue to circulate, domestic-currency-denominated

bank deposits continue to exist, and tax returns in at least some countries, such as Germany, are calculated in domestic-currency units.) If a country left the monetary union because it felt that the ECB was following excessively inflationary policies, its 'good' domestic currency would drive out the 'bad' European currency. If that country instead left the monetary union because it felt that the ECB's overly restrictive policies were aggravating unemployment, it would have to declare that the euro would no longer be accepted as legal tender within its borders.

And of course, the markets will anticipate governments' actions. Imagine that Germany is contemplating leaving Stage IIIA out of dissatisfaction with the inflationary policies of the ECB. Imagine further that investors expect all Deutschmarks still circulating in the monetary union to become liabilities of a newly reconstituted Bundesbank and that the Deutschmark will appreciate against the EMU currencies once Germany exits. Investors then have an incentive to hold Deutschmarks rather than, say, French francs. (Note, however, that until 2002 national currencies will retain their legal tender status within the national boundaries of the existing issuers, which may limit the extent of the switch.) As agents sell francs for marks, the ECB will instruct the Bundesbank, its German operating arm, to sell marks for francs at par. While settlement terms have yet to be specified, one presumes that the Bundesbank would request settlement in a certain amount of euros, which the Banque de France would provide in the form of the corresponding number of francs. The Banque de France's balance sheet would shrink, while the Bundesbank's would expand.

So long as both countries remain committed to participation in the monetary union, nothing can disrupt this process, as authors such as Dooley (1997) and Buitert and Sibert (1997) have emphasized. But if Germany is contemplating whether to leave the monetary union, the Bundesbank may be reluctant to accept franc-denominated assets on which it stands to suffer a capital loss (Goldman Sachs, 1998). If it hesitates to exchange francs for marks at par, a premium on the latter could arise. That premium could convince the markets that break-up is imminent, accelerating the movement into marks.

In Stage IIIB, only euros will circulate, but there will still be a distinction between French and German bank deposits and the possibility that bank deposits payable in France will trade at a discount relative to bank deposits payable in Germany when the monetary union breaks apart. The transfer of funds between French and German banks will be facilitated by the TARGET payment system that will come into operation at the beginning of the monetary union. Garber (1997*a,b*) observes that this will give speculators the opportunity to take very large positions. Imagine that international investors and domestic residents sell euro bank deposits payable in France for euro bank deposits payable in Germany, anticipating that the latter will be redenominated in Deutschmarks which will then appreciate against the euro. The French payment system will deduct euros from the French bank's account at the Banque de France and, using TARGET, pass those euros to the Bundesbank, which will add them to the German bank's account. Critically, the ability of French depositors to transfer funds at par to German banks will not be limited by the French banking system's deposits at the Banque de France. Under TARGET, the Banque de France is entitled to daytime overdraft privileges; if the payments it is asked to make to Germany exceed the euros it has on hand, it receives credit from the Bundesbank limited only by the acceptable collateral (liquid euro securities) of its clients. Given the large volume of such liquid securities, essentially all French bank deposits could be quickly and costlessly converted into German bank deposits.

Once again, if Germany and the Bundesbank stand ready to defend the monetary union, this unlimited extension of credit by the Bundesbank to the Banque de France means that there is no way for EMU to collapse. Effectively, intervention by the Bundesbank on behalf of the Banque de France will permanently fix the relative price of French and German bank deposits. (Insofar as the TARGET's daytime overdraft privileges cause the Deutschmark-denominated money supply to expand even faster than the franc-denominated money supply contracts, this could be sterilized by further intervention by the ECB.) But if there are doubts about the depth of that commitment, this same arrangement means that investors betting on a change in the relative price of French and German deposits can take even larger

positions than under a normal fixed-rate system, in which the amount of credit that one central bank will extend to another is limited (as emphasized by Eichengreen and Wyplosz, 1993), and in which the peg will collapse once positions exceed the reserves of the central bank under attack plus the limited credits it receives from its foreign counterparts.

This raises the prospect of a self-fulfilling attack on Stage III. Assume that the likelihood of Germany abandoning its EMU commitment is an increasing function of the capital losses it will suffer on the Bundesbank's holdings of French securities once the monetary union dissolves. Assume further that its capital losses are strictly increasing in the level of Bundesbank holdings of French securities. Then transfers of French bank deposits to Germany in anticipation of this possibility, by increasing the Bundesbank's French security holdings, can precipitate the very event motivating investors.

This assumes, of course, that calculations of marginal costs and benefits could really tip the balance between a country supporting and abandoning the monetary union. The counter-argument is that abandoning the monetary union will violate an international treaty signed by 15 European countries. It will cast into doubt the entire European construction back to the Treaty of Rome. A country abandoning the monetary union would thus incur a high fixed cost, which represents a considerable barrier to exit. This idea that countries will hesitate to abandon EMU because doing so will place at risk the entire European project underlies the belief that the monetary union, once started, is doomed to succeed.

A more plausible scenario for a Stage III crisis is not, then, that participating countries will experience mild disagreements over the stance of their common monetary policy, but that a fully fledged banking and financial crisis in one member state will require a massive bail-out by the others. Imagine a run on the Italian banking system in which depositors rush to withdraw their funds from Italian banks and transfer them over TARGET to German financial institutions. The Bank of Italy will then discount eligible paper on behalf of domestic banks while obtaining daytime overdrafts via TARGET. At some point, other national central banks—the German Bundesbank in the present example—might decide that

they do not wish to finance a bail-out of the Italian banking system, because, for example, they do not feel that the Italian authorities are taking the requisite steps to distinguish insolvent from illiquid institutions and to close down the former. (Note that this problem could be aggravated by the fact that the ECB and other national central banks under its umbrella have no direct supervisory authority over commercial banks; even for information, they must rely on national regulatory authorities and governments.) The Bundesbank could then halt the provision of credits to the Bank of Italy via TARGET, and a premium on German deposits relative to Italian deposits would emerge. The Italian authorities might then decide to resume printing their own currency in an effort to relitigate the banking system.

All this might seem far-fetched. But a precedent from the early years of the Federal Reserve System suggests that it cannot be ruled out (Eichengreen, 1992). The US central bank was established as a federal system (note its name) that assigned considerable independence to the regional reserve banks. Only in 1935 was authority over the discounting and monetary policy operations of the regional reserve banks centralized in the hands of the Board of Governors in Washington, DC. That change was prompted by the problems that arose in handling the 1933 banking crisis. By March 1933, bank runs had spread to virtually every state of the union. The question is why the central bank did not do more to stabilize the system. A simple answer (Wigmore, 1987) is that the Fed was constrained by the gold cover provisions of the Gold Standard Act. Gold losses were borne unevenly by reserve banks, with New York, from whose banks foreign deposit withdrawals were greatest, experiencing the most intense pressure. On 4 March, when US monetary gold reserves were 44 per cent of the note and deposit liabilities of the system, the gold backing of the notes of the New York Fed had fallen to the 40 per cent statutory minimum. In contrast, the Chicago Fed's gold reserve ratio was still 65 per cent. On 1 March, the Chicago Fed lent \$105m to the New York Fed on the collateral of a matching amount of the latter's government securities and acceptances. Two days later, however, Chicago withdrew its cooperation. Policy-makers at the Chicago Fed had several concerns: that a bank bail-out would create moral hazard and that their own

financial position might be weakened. The New York Fed was forced to curtail its lender-of-last-resort intervention. The New York Stock Exchange and New York banks suspended operations the same day.

This crisis did not result in a premium on Chicago deposits over New York deposits or break-up the US monetary union because President Roosevelt immediately declared a nationwide bank holiday, and because the Federal Reserve Board then compelled Chicago and other reserve banks to resume inter-district rediscounting on behalf of the New York Fed. But given similarities in the structure of the early Fed and the European System of Central Banks, this cautionary tale should not be ignored.

## IX. CONCLUSION

While there is now wide consensus on a range of EMU-related issues, that consensus remains less than complete. To illustrate this, I allude in closing to three further issues, each of which is currently a subject of active debate.

One active area of research and discussion concerns the instruments of monetary policy (Enoch *et al.*, 1997). As noted in section VII, the presumption is that the ECB, in implementing its monetary policy, will rely on repurchase agreements, but that for fine-tuning and signalling it may also use open-market operations, foreign exchange market intervention, and the collection of fixed-term deposits. But the central bank's relative reliance on these instruments and its choice of counterparties remain to be determined. And it is unclear whether the central bank will also use reserve requirements. If so, it will have to decide how to trade off the additional reporting burden on banks against the excessive window-

drressing that occurs in countries relying on, *inter alia*, end-month data (Remsperger, 1997).

A second issue is exchange-rate relations between the 'ins' and 'outs'. European officials foresee an ERM-2 in which the currencies of member states that are not founding members of the monetary union are connected to the euro by bands. This will be a hub-and-spoke system in which each bilateral rate will have its own band, in contrast to the old ERM's multilateral grid. But it remains to be seen how widely subscribed the ERM-2 turns out to be since countries such as the UK and Sweden have already made clear their reluctance to commit to exchange-rate targets. Presumably participation will depend on how anxious the remaining member states are to gain entry to the monetary union, and how quickly the population of such states is augmented by enlargement of the European Union. And, ultimately, how much support the ECB extends to the currencies of the outsiders will determine how stable the system proves.

A final issue concerns the euro's introduction at the beginning of 1999 and strategies for ensuring that the bilateral conversion rates preferred by governments equal the rates actually delivered by the markets at the close of business on 31 December 1998. The Maastricht Treaty requirement ruling out jumps in the external value of the ecu implies that the conversion of national currencies into euro must occur at the bilateral rates prevailing at the end of 1998 (De Grauwe, 1997). Options for steering actual rates towards desired levels include continuous foreign-exchange intervention in the spot and forward markets in the period between the announcement of desired conversion rates and the end of 1998 (Obstfeld, 1997), and massive last-minute intervention (Begg *et al.*, 1997b). One presumes that flexibly minded European central banks will use a combination of these strategies.

## REFERENCES

- Allsopp, C. J., Davies, G., McKibbin, W., and Vines, D. (1997), 'Monetary and Fiscal Stabilization of Demand Shocks within Europe', in C. Deissenberg, R. F. Owen, and D. Ulph (eds), *European Economic Integration*, Blackwells, special supplement to *Review of International Economics*, 5(4), 55–76.
- Alesina, A., and Grilli, V. (1992), 'The European Central Bank: Reshaping Monetary Politics in Europe', in M. Canzoneri, V. Grilli, and P. Masson (eds), *Establishing a Central Bank: Issues in Europe and Lessons from the US*, Cambridge, Cambridge University Press, 49–70.
- (1994), 'On the Feasibility of a One-Speed or Multispeed European Monetary Union', in B. Eichengreen and J. Frieden (eds), *The Political Economy of European Monetary Integration*, Boulder, CO, Westview Press, 107–28.
- Alogoskoufis, G., and Smith, R. (1991), 'The Phillips Curve, the Persistence of Inflation, and the Lucas Critique: Evidence from Exchange Rate Regimes', *American Economic Review*, 81, 1254–75.
- Anderton, R., and Barrell, R. (1995), 'The ERM and Structural Change in European Labor Markets', *Weltwirtschaftliches Archiv*, 131, 47–66.
- Artis, M. J., and Omerod, P. (1991), 'Is There an "EMS" Effect in European Labour Markets?', CEPR Discussion Paper No. 598 (December).
- (1996), 'Another Look at the "EMS Effect" in European Labor Markets', in P. De Grauwe, S. Micossi, and G. Tullio (eds), *Inflation and Wage Behaviour in Europe*, Oxford, Clarendon Press, 231–41.
- Artus, J., and Salmon, M. (1996), 'The EMS, Credibility and Disinflation: The French Case', in P. De Grauwe, S. Micossi, and G. Tullio (eds), *Inflation and Wage Behavior in Europe*, Oxford, Clarendon Press, 30–58.
- Bayoumi, T., and Eichengreen, B. (1995), 'Restraining Yourself: The Implications of Fiscal Rules for Economic Stabilization', *Staff Papers*, 42, 32–48.
- (1997), 'Optimum Currency Areas and Exchange Rate Variability: Theory and Evidence Compared', in B. Cohen (ed.), *International Trade and Finance: Essays in Honour of Peter Kenen*, Cambridge, Cambridge University Press, 216–46.
- Masson, P. (1995), 'Fiscal Flows in the United States and Canada: Lessons for Monetary Union in Europe', *European Economic Review*, 39, 253–75.
- Begg, D., Giavazzi, F., and Wyplosz, C. (1997a), 'Options for the Future Exchange Rate Policy of the EMU', CEPR Occasional Paper No. 17.
- von Hagen, J., and Wyplosz, C. (1997b), 'EMU: Getting the End Game Right', *Monitoring European Integration*, 7, London, Centre for Economic Policy Research.
- Benassy-Queré, A., Mojon, B., and Pisani-Ferry, J. (1997), 'The Euro and Exchange Rate Stability', in T. Krueger, P. Masson, and B. Turtelboom (eds), *European Monetary Union and the International Monetary System*, Washington, DC, International Monetary Fund, 157–94.
- Bergin, P., and Moersch, M. (1997), 'EMU and Outsiders: Fixed Versus Flexible Exchange Rates', in P. J. J. Welfens (ed.), *European Monetary Union: Transition, International Impacts and Policy Options*, Berlin and New York, Springer, 71–122.
- Bergsten, C. F. (1997), 'The Impact of the Euro on Exchange Rates and International Policy Cooperation', in P. R. Masson, T. H. Krueger, and B. G. Turtelboom (eds), *EMU and the International Monetary System*, Washington, DC, International Monetary Fund, 17–48.
- Bofinger, P., and Gros, D. (1992), 'A Multilateral Payments Union for the Commonwealth of Independent States, Why and How?', CEPR Discussion Paper No. 654, May.
- Buiter, W. H., and Sibert, A. (1997), 'Transition Issues for the European Monetary Union', NBER Working Paper No. 6292, November.
- Chari, V. V., and Kehoe, T. (1997), 'Fiscal Constraints in a Monetary Union', unpublished manuscript, Federal Reserve Bank of Minneapolis.
- Cooper, R. (1992), 'Whither Europe?', *Yale Review*, 80, 10–17.
- De Grauwe, P. (1996), 'Comment', in H. Siebert (ed.), *Monetary Policy in an Integrated World Economy*, Tubingen, J. C. B. Mohr, 232–8.
- (1997), 'The Indeterminacy of Euro Conversion Rates: Why It Matters and How It Can Be Solved', unpublished manuscript, University of Leuven.
- Dooley, M. (1997), 'Speculative Attacks on a Monetary Union?', unpublished manuscript, University of California, Santa Cruz.
- Dornbusch, R. (1991), 'Monetary Problems of Post-Communism: Lessons from the End of the Austro-Hungarian Empire', *Weltwirtschaftliches Archiv*, 128, 391–424.

- Eichengreen, B. (1992), 'Designing a Central Bank for Europe: A Cautionary Tale from the Early Years of the Federal Reserve System', in M. Canzoneri, P. Masson, and V. Grilli (eds), *Establishing a Central Bank: Issues in Europe and Lessons from the US*, Cambridge, Cambridge University Press.
- (1993), 'Labor Markets and European Monetary Unification', in P. Masson and M. Taylor (eds), *Policy Issues in the Operation of Currency Areas*, Cambridge, Cambridge University Press, 130–62.
- (1996), 'A More Perfect Union: The Logic of Economic Integration', *Princeton Essays in International Finance*, No. 198, International Finance Section, Department of Economics, Princeton University, June.
- (1997), 'The Euro as a Reserve Currency', *Journal of the Japanese and International Economies*, forthcoming.
- Wyplosz, C. (1993), 'The Unstable EMS', *Brookings Papers on Economic Activity*, **1**, 51–143.
- — (1998), 'The Stability Pact: More than a Minor Nuisance?', *Economic Policy*, **26**, 65–114.
- Enoch, C., Hilbers, P., and Kovanen, A. (1997), 'Some Issues in the Design of Instruments for the Operation of European Economic and Monetary Union', IMF Working Paper WP/97/178, December.
- European Commission (1997), 'Economic Policy in EMU, Part B: Specific Topics', Economic Paper No. 125, Brussels, European Commission, Directorate General II, November.
- European Monetary Institute (1997), 'The Single Monetary Policy in Stage Three: Elements of the Monetary Policy Strategy of the ESCB', Frankfurt, European Monetary Institute.
- Feldstein, M. (1997a), 'The Political Economy of European Economic and Monetary Union: Political Sources of an Economic Liability', *Journal of Economic Perspectives*, **11**, 23–42.
- (1997b), 'EMU and the International Conflict', *Foreign Affairs*, **76**(6), Council on Foreign Relations, Inc., 60–73.
- Folkerts-Landau, D., and Garber, P. (1992), 'The European Central Bank: A Bank or a Monetary Policy Rule?', NBER Working Paper No. 4016
- Forni, M., and Reichlin, L. (1997), 'National Forces and Local Economies: Europe and the United States', CEPR Discussion Paper No. 1632, April.
- Garber, P. (1997a), 'Is Stage III Attackable?', *Euromoney*, August, 58–9.
- (1997b), 'Notes on the Role of TARGET in a Stage III Crisis', unpublished manuscript, Brown University.
- Gressani, D., Guiso, L., and Visco, I. (1988), 'Disinflation in Italy: An Analysis with the Econometric Model of the Banca d'Italia', *Journal of Policy Modeling*, **8**, 163–203.
- Goldman Sachs (1998), 'Could Speculation Break EMU Apart?', *European Economics Analyst*, EMU Briefing 98/1 (January).
- Gordon, R. J. (1998), 'The Aftermath of the 1992 ERM Breakup: Was There a Macroeconomic Free Lunch', NBER Currency Crises Conference, 6–7 February.
- Grilli, V., Masciandaro, D., and Tabellini, G. (1991), 'Political and Monetary Institutions and Public Finance Policies in the Industrial Democracies', *Economic Policy*, **6**, 342–92.
- Hochreiter, E., and Winckler, G. (1995), 'The Advantages of Tying Austria's Hands: The Success of the Hard Currency Strategy', *European Journal of Political Economy*, **11**, 83–111.
- Ilzkovitz, F. (1996), 'Les Perspectives d'Internationalisation de l'Euro', *Revue d'Economie Financière*, **36**, 151–69.
- Ingram, J. (1959), 'State and Regional Payments Mechanisms', *Quarterly Journal of Economics*, **73**, 619–32.
- Kenen, P. B. (1995), *Economic and Monetary Union in Europe: Moving Beyond Maastricht*, Cambridge, Cambridge University Press.
- Kremers, J. J. M. (1990), 'Gaining Policy Credibility for a Disinflation', *Staff Papers*, **37**, 116–45.
- MacDougall Report [European Commission] (1977), *Report of the Study Group on the Role of Public Finance in European Integration*, Brussels, European Commission.
- Masson, P., and Taylor, M. (1993), 'Fiscal Policy within Common Currency Areas', *Journal of Common Market Studies*, **31**, 29–44, March.
- Mauro, P., and Spilimbergo, A. (1998), 'Persistent Geographic Unemployment Differences and the Wage Bargaining System', unpublished manuscript, European University Institute and International Monetary Fund.
- Méltiz, J. (1994), 'Is There a Need for Community-Wide Insurance Against Cyclical Disparities?', *Economie et Statistique*, Special Issue, 99–106.
- Vori, S. (1992), 'National Insurance Against Unevenly Distributed Shocks in a European Monetary Union', unpublished manuscript, INSEE and Bank of Italy.
- Obstfeld, M. (1997), 'A Strategy for Launching the Euro', *European Economic Review*, forthcoming.
- Peri, G. (1998), 'Regional Non-Adjustment and Fiscal Policy', *Economic Policy*, **26**.
- OECD (1990), *OECD Employment Outlook*, Paris, Organization for Economic Cooperation and Development, July.
- (1996), 'Labor Market Performance, Budget Control, and Social Transfers', *OECD Economic Outlook*, **59**(June), 23–38.

- Oudiz, G., and Sachs, J. (1984), 'Macroeconomic Policy Coordination Among the Industrial Economies', *Brookings Papers on Economic Activity*, **1**, 1–64.
- Ramaswamy, R., and Sloek, T. (1997), 'The Real Effects of Monetary Policy in the European Union: What Are the Differences?', IMF Working Paper No. 97/160.
- Remsperger, H. (1997), 'Which Instruments for the European System of Central Banks?', in S. Collignon (ed.), *European Monetary Policy*, London, Pinter, 315–34.
- Sala-i-Martin, X., and Sachs, J. (1992), 'Federal Fiscal Policy and Optimum Currency Areas', in M. Canzoneri, V. Grilli, and P. Masson (eds), *Establishing a Central Bank: Issues in Europe and Lessons from the US*, Cambridge, Cambridge University Press, 195–220.
- Schnadt, N. (1994), *The Domestic Money Markets of the UK, France, Germany and the US*, City Research Project, London, London School of Economics.
- Sorensen, B., and Yosha, O. (1997), 'International Risk Sharing and European Monetary Unification', unpublished manuscript, Brown University and Tel Aviv University.
- Viñals, J., and Jimeno, J. F. (1996), 'Monetary Union and European Unemployment', Working Paper No. 9624, Servicio de Estudios, Bank of Spain.
- Volcker, P. (1995), 'The Quest for Exchange Rate Stability: Real or Quixotic?', unpublished manuscript, London School of Economics.
- Von Hagen, J. (1992), 'Fiscal Arrangements in a Monetary Union: Evidence from the US', in D. E. Fair and C. de Boissieu (eds), *Fiscal Policy, Taxation, and the Financial System in an Increasingly Integrated Europe*, Kluwer, Dordrecht, 337–60.
- Eichengreen, B. (1996), 'Federalism, Fiscal Restraints, and European Monetary Union', *American Economic Review, Papers and Proceedings*, **86**, 134–8.
- Wigmore, B. (1987), 'Was the 1933 Banking Crisis a Run on the Dollar?', *Journal of Economic History*, **47**, 739–56.
- Wijkander, H. (1997), 'Wage Policy Implications of EMU', European Commission, Directorate-General for Economic and Financial Affairs, Brussels.
- Williamson, J. (1985), 'The Exchange Rate System', *Policy Analyses in International Economics*, no. 5, revised, Washington, DC, Institute of International Economics.