# The Future of EMU

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## 1. Introduction

In this paper we speculate about how Europe's monetary union will evolve in the next five to ten years. We concentrate on what is likely to be the most important change in that period, namely, the increased number and heterogeneity of the participating states. While the incumbent members of the monetary union will almost certainly continue to converge in terms of per capita incomes, it is possible, even probable, that they will be joined in EMU not just by the three European Union member states that have not yet agreed to participate but also by a number of Eastern European countries that have not yet been admitted to the EU itself.[2] These new members will be sharply different from the incumbents in terms of their per capita incomes and economic structures. In this paper we concentrate on the implications of this development for the structure, organization and operation of the monetary union.

This focus dictates what we take up and what we leave aside. Thus, we focus on the

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[2] We could have said "Eastern and Southern European countries," given the pending applications of Malta and Cyprus, but neither of the latter is large enough to significantly affect our analysis.

implications for the conduct of monetary policy of voting and representation rules on the ECB Board on the grounds that these will have to change with the accession of additional members. We focus on prudential supervision and lending in the last resort on the grounds that the inclusion of countries with recently-created and still-developing financial systems will be among the most prominent consequences of EMU enlargement. We focus on the coordination of fiscal policies on the grounds that the fiscal positions and problems of the accession economies will differ from those of the incumbents. And we focus on labor market flexibility on the grounds that labor-market effects will be among the leading consequences of the admission of new members. To be clear, our concern throughout is with implications for Europe's monetary union rather than implications for the EU.[3]

In Section 2 we explore the likely extent of the heterogeneity among the members of the monetary union. We use a model from the empirical literature on growth, estimated on data for the 1980s and 1990s, to forecast convergence and divergence in coming years. The findings indicate, predictably, that the admission of new Eastern European members will increase heterogeneity. They also suggest that this problem will not necessarily diminish in the short run. Whether catch-up and convergence close the gap between new and existing members is contingent on the quality of institutions. If institutional upgrading is slow, then our model predicts no tendency for catch up on the part of the Eastern European countries, heightening the heterogeneity problem. If, on the other hand, institutions in the accession economies are upgraded to EU levels, our model still predicts that heterogeneity will increase with enlargement

[3] Although this distinction may evaporate insofar as there are pressures for existing member states still outside the monetary union to join and a desire on the part of the accession economies to adopt the euro as quickly as possible.

over the medium run. But it also predicts that growth will be faster in Eastern than Western Europe, suggesting that catch-up and convergence will ameliorate that heterogeneity in the long run. As a matter of positive analysis, this result does not seem to have appeared in the literature before.[4] As a matter of policy, the contrast between these two forecasts points to the steps that need to be taken to prepare the Eastern European aspirants for membership in the EU and for participation in its monetary union.

The subsequent analysis is predicated on the assumption that the accession economies will join the monetary union at an early date. This presumes an answer to the question of whether such membership is feasible and desirable. We address this issue in Section 3. In Sections 4 through 7 we then consider monetary decision making, prudential supervision, fiscal coordination, and labor market flexibility. Section 8 summarizes the implications for EMU five to ten years from now.

## 2. How Much Heterogeneity?

We start by estimating a canonical growth model on a panel of countries. We consider growth rates over two eight-year periods -- 1983-1990 and 1991-1998 -- and forecast outcomes at the end of the next eight-year period, 1999-2006, 2006 being a likely date for enlargement of EMU to include anywhere from 5 to 12 accession economies.[5]

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[4]Although after this sentence and the first draft of this paper were written, we found something very similar in a paper by Crafts and Kaiser (2001), albeit for a very different specification and sample of countries.

[5] As we explain in Section 3 below. Our starting point is accounted for by the fact that the data for a large number of countries is spotty before 1983 and by the fact that there was an important regime shift at the beginning of the 1990s, due to the collapse of central planning in the

Our sample includes EU members, accession economies, and a sample of others (99 countries in all). We omit countries for which the majority of exports is accounted for by a single commodity.[6] The remaining countries for which the World Bank gathers data comprise our sample.[7]

The dependent variable is the average annual rate of growth of per capita income over each eight-year interval. Regressors include the ratio of GDP per capita to U.S. GDP per capita in the initial year (1982 or 1990), the ratio of government consumption to GDP in the initial year, the average investment rate over the period, and the level of resources devoted to schooling as a measure of educational attainment and investment in human capital, which we proxy in most of the analysis by the teacher-pupil ratio, again in 1982 and 1990.[8] We include dummy variables for regions and for EU membership as well as period fixed effects.[9] The use of

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Soviet bloc and the resumption of private portfolio capital flows. Together with the fact that the data stop in 1998, this accounts for the decision to consider successive eight-year periods.

[6] On the grounds that growth in these countries is likely to be heavily driven by developments in that commodity market and also because there are no EU members or accession economies in this position.

[7] We include the Eastern European transition economies and China only in the second subperiod, since data from the era of strict central planning does not contain much information on the behavior of market economies. We include China in the 1990s as the Chinese economy has been moving in more market-oriented directions in the recent years. In the case of Germany, the country's reunification in 1989 motivates our choice. The list of countries is available on request.

[8] All quantities are measured in 1995 U.S. dollars. Macroeconomic and education data are from the World Bank's *World Development Indicators 2000*.

[9] The latter in the form of a dummy variable for the first subperiod (1983-90). The EU dummy is set to unity when a country was a member of the European Union throughout the entire eight-year period and to the appropriate fraction when it was a member for only part of the period in question. Somewhat arbitrarily, we include Turkey as a transition economy on the

nonoverlapping eight-year periods makes 2006 the natural terminal date for our forecasting exercise. The Commission's recent paper on enlargement points mid-to-late 2002 as the earliest date by which the EU may welcome new members.[10] Enlargement would then have to be ratified by the national parliaments of the 15 incumbents, which is unlikely to occur before 2004. Given the two-year qualifying period for satisfying the convergence criteria implied by the mainstream interpretation of the Maastricht Treaty (more on this below), this implies 2006 as the earliest plausible date for expansion of the monetary union.[11]

Our indicator of institutional quality is from Kaufman, Kraay, and Zoido-Lobaton (1999), who report survey research for a cross section of countries. The indicators reported in their survey include voice and accountability (an indicator of political and civic freedom), political stability, government effectiveness, adequacy of the regulatory framework, rule of law, and corruption control.[12] We take an unweighted average of these indicators as our measure of institutional quality.

The first column of Table 1 reports the benchmark regression. Although several coefficients have large standard errors, each has the expected sign. The negative coefficient on GDP is consistent with the catch-up hypothesis, while the negative effect of government

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grounds that it has applied for EU membership along with other transition/accession economies.

[10] If the cohort of new members is large (the "convoy approach" is selected), it is conceivable that negotiations and ratification could take longer.

[11] Baldwin et al. (2000) suggest that this process might be telescoped so as to permit enlargement as early as mid-2005 if the exchange rate criterion is interpreted loosely (as was done for Finland and Italy) and if euro-ized countries skip the changeover period.

[12] The indicators are based on data for the 1997-98 period. Thus, we hold these institutional indicators constant across periods in estimation.

consumption confirms Barro's results.[13] EU membership has a positive effect on growth, albeit not one that is statistically significant, reflecting the diverse performance of different (high- and low-income) member states. Transition status is negatively associated with growth, reflecting the teething problems of the formerly-planned economies. The coefficient on institutional quality is positive and significant, confirming that institutions, so measured, are important.

The second column reports an augmented specification which interacts these macroeconomic, educational, and institutional indicators with the dummy variables for EU membership and transition status. Although their standard errors are large, all of the coefficients again have their expected signs. In particular, the coefficient on the interaction of transition status and institutions is large, positive and significantly different from zero at conventional confidence levels even when we continue to control separately for the quality of institutions. Apparently, institutions matter even more for growth in transition economies than elsewhere.[14]

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[13] On the former see for example Mankiw, Romer, and Weil (1992), while on the latter see Barro (1991, 1996, 1997).

[14] Interestingly, once we control for the exceptionally strong effect of institutional quality in the transition economies, the dummy variable for these countries no longer enters with a significant coefficient. To check robustness, we experimented with additional specifications, for example adding indicators of infrastructure (electricity consumption, availability of phone lines) and of the composition of production (share of total value added accounted for by industry, manufacturing and agriculture). (All these variables are drawn from the World Bank's data set.) We experimented with alternative measures of educational attainment (enrollment rates in primary and secondary school) and various measures of the size of the public sector. We also included a measure of country size (the ratio of domestic population to U.S. population) among the regressors. In no case were the results noticeably affected. Transition-economy status continued to have a negative effect on growth, while the quality of institutions continued to affect growth positively, and more importantly in transition economies than elsewhere. An important issue is the potential endogeneity of institutions (a point emphasized by Chong and Calderon 2000). Political scientists and historians generally regard some institutions as potentially more endogenous with respect to macroeconomic performance than others (where the slowly-evolving ones, that can be taken as predetermined by the econometrician analyzing

Because the key results are the same in the first and second columns but the fit is better in the latter (with the augmented model explaining about half of the variation of growth rates across countries), we use the equation in the second column for forecasting purposes. We have the 1998 levels of per capita GDP, government consumption, and resources devoted to education to use as initial conditions. To calculate the average investment to GDP ratio out of sample, we fit a linear-quadratic time trend to the available annual data for the investment ratio for each country and use the estimated trend to project values.[15] We then calculate the growth rate over the 1999-2006 period.[16] With this forecast of the growth rate, it is straightforward to calculate per capita GDP in 2006 using the 1998 level as an initial condition.

A key input into the forecasting exercise is the quality of institutions, since this variable has large effects on the accession economies. We make two assumptions about this. The first is that the quality of institutions in each country remains unchanged at its current level. Alternatively, we assume that institutional quality in the accession economies rises to the average level of EU member states today. We think of these as lower and upper bounds for the quality of institutions in the accession economies in 2006.

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growth over relatively short periods of time, are delivered by history and locked in by tradition and network effects). For example, we would argue that our measures of political and civic freedom and of rule of law are unlikely to be affected by limited variations in growth rates over periods as short as eight years. When we construct the index of the quality of institutions using only these (predetermined) components, the results differ insignificantly from what we report in the text.

[15] The data are extended backward beyond 1982 when available.

[16] The fact that few data points are available for transition economies and Germany raises doubts about the reliability of the estimated trends (especially since coefficients for several countries are statistically insignificant). We maintain this approach as a working hypothesis for lack of a better alternative.

Table 2 shows the resulting growth rates and levels of per capita income for the accession economies and incumbent EU members.[17] Strikingly, in the absence of the upgrading of institutions the model predicts continued divergence between the EU incumbents and new members. Estonia, Latvia, Lithuania, Romania, the Slovak Republic and Turkey are among the potential new members for whom the growth of per capita incomes is disappointing under this assumption. Although the fact that they are starting out well behind the incumbents gives a boost to their growth, this is not enough to offset institutional handicaps.[18]

Alternatively, if institutions in the accession economies are upgraded to levels representative of the average EU country, growth in the East improves substantially, to the point that the accession economies grow faster than the EMU incumbents. Enlargement still causes increased heterogeneity in the levels of per capital income over the horizon we consider. But faster growth in the accession economies produces a tendency toward convergence in the longer run. It is not surprising that institutional convergence makes for faster growth and income convergence. What is surprising is the magnitude of the effect.

Table 3 summarizes our results on heterogeneity. For purposes of calculating the standard deviation of per capita GDP, we consider six country groupings:

[17] Note that we have dropped the Netherlands for lack of data on some institutional indicators and excluded Spain because the absolute value of the predicted growth rate was absurdly large.

[18] Starting out behind gives a boost to growth in the East not just because of the relative GDP term but also because of its interaction with the dummy variable for accession status, which suggests that the catch-up dynamic is especially powerful in the economies of this region.

- EMU 1999: The members of the monetary union in 1999.[19]
- EMU 2006.1: The same countries in 2006.
- EMU 2006.2: The same countries plus Denmark, Greece, Sweden, and the UK.
- EMU 2006.3: The previous countries plus the members of the 1998 Accession Group: Czech Republic, Estonia, Hungary, Poland, and Slovenia.
- EMU 2006.4: The previous countries plus the members of the 2000 Accession Group: Latvia, Lithuania, Romania, and the Slovak Republic.
- EMU 2006.5: The previous countries plus Turkey.

Consider first the scenario in which institutional quality remains unchanged. With growth in the low-income members of today's monetary union forecast to slow in coming years, the standard deviation of growth among the existing members of EMU falls further between 1999 and 2006. The standard deviation of per capita incomes is actually slightly higher, given the variable's higher average level in 2006. When EMU is enlarged to include Denmark, Greece, Sweden, and the UK, the dispersion of growth rates falls only half as fast and the dispersion of income levels rises still further, because Greece is well below the level of the other three countries. Enlargement to the East produces the most substantial increase in income dispersion across EMU. As the union is enlarged to encompass the 1998 Accession Group (the Czech Republic, Estonia, Hungary, Poland, and Slovenia), the 2000 Accession Group (not only the previous countries but also Latvia, Lithuania, Romania, and the Slovak Republic), and Turkey, the dispersion of per capita incomes becomes larger still.

[19] Except the Netherlands and Spain, as noted above.

If we assume institutional upgrading in the accession economies, then the standard deviation of growth rates falls rather than rising as membership in the monetary union expands. It falls when we add the 1998 Accession Group, falls again when we then add the 2000 Accession Group, and falls a third time when we add Turkey. As pointed out above, growth becomes faster in Eastern Europe than in the West. The dispersion of per capita incomes continues to rise, reflecting very different initial levels, though more modestly than before. Over the longer run, faster growth in the new member states results in the continued convergence of per capita incomes.

These results flow directly from our regression analysis. The interaction terms in the second column of Table 1 suggest that the macroeconomic determinants of growth have had smaller effects on growth in the transition economies than in other parts of the world. The problems that needed to be solved in order to initiate and sustain growth are no longer primarily macroeconomic, in other words.[20] On the other hand, the interaction between transition-economy status and institutional quality is positive and large (both absolutely and relative to other parts of the world). It follows that the largest impact on growth is to be had, in an accounting sense, from improving the quality of institutions.

Thus, our analysis suggests that among the most important changes needed in the accession economies to ensure continued convergence and to smooth the operation of the expanded monetary union are improvements in the quality of institutions designed to enhance

[20] If they ever were. The negative coefficient on the interaction term between government consumption and transition-economy status suggests that efforts to downsize the public sector may have had a greater payoff in transition economies, but the coefficient in question is insignificantly different from zero. Whether these relationships will remain the same in the future as they have been in the past is, of course, debatable.

political contestibility, government accountability, adequacy of regulation, rule of law, and corruption control. These dimensions of institutional quality are not directly addressed by the *acquis communautaire* (whose 31 chapters are detailed in Table 4). The expectation appears to be that integration into the Single Market will intensify the pressure on the accession economies to upgrade their institutions (otherwise, labor will flow out and capital will have no incentive to flow in).[21] There will be a race to the top, in other words.[22]

These same institutional trajectories will presumably determine whether eastward enlargement makes for a stronger or weaker euro and what kind of pressures this places on the ECB. With improved institutions, the new members of the monetary union will become attractive places in which to invest; this will presumably lead to an inflow of direct foreign investment from outside the euro area ― the kind of effect which has been evident in Ireland in the initial years of Stage III. But if the markets perceive that regulation is inadequate and corruption is not under control, then no such investment will result. The need for larger inter-regional transfers than would be necessary otherwise would then function as a drag rather than a stimulus to the euro.[23]

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[21] Consistent with this expectation, note that the interaction term between EU membership and institutional quality is also positive, suggesting that institutional upgrading will further boost growth if these countries at the same time join the EU. This is consistent with the notion that accession to the Single Market strengthens the incentives to improve institutions.

[22]Whether openness and integration in fact provide incentives for institutional upgrading, and how powerfully the effect operates, are empirical questions; answering them should be a high priority for research.

[23] But neither factor is likely to be overwhelmingly powerful because the accession economies are small relative to the 12 incumbent members of the monetary union: the GDPs of the ten applicant countries in Central and Eastern Europe is a mere 6 per cent of that of the 12

## 3. The Accession Economies and EMU

Our analysis assumes that the accession economies will adopt the euro at an early date.[24] But accession does not guarantee acceptance into the monetary union. The Maastricht Treaty requires EU members to first demonstrate for two years their ability to satisfy the convergence criteria, as EU finance ministers reiterated in their report on enlargement in November 2000.[25] But for the accession economies, like the Club Med countries and Greece before them, the incentives to seek entry are strong. And the reluctance of the incumbents to grant it may be less than sometimes supposed.

The accession economies will come at least as close as the existing EMU members to satisfying the optimum currency area criteria. They are small. They are open and trade disproportionately with the EU; hence, they stand to gain significantly from the additional trade and foreign investment that a common currency will confer (Tulio 1999, Rose 1999, Portes and Rey 1999, Buch and Piazolo 2000). Their citizens will be able to move freely about the monetary union. They have already gone a good way toward establishing independent central banks (Ilieva and Healey 2000). Some, like Bulgaria and Estonia, have already demonstrated their ability to live with a monetary policy dictated by the European Central Bank, while others

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incumbents, and their financial markets are even smaller (their M3 is only 3 per cent of that of the 12 incumbents).

[24] The fact that they will not enjoy opt outs like those possessed by Denmark and the UK (not having been present at the creation of the Treaty on Economic and Monetary Union) works in this direction.

[25] Ecofin also insisted that any effort by the new members to unilaterally adopt the euro "would run counter to the underlying economic reasoning of economic and monetary union (Emu) in the treaty."

already formulate their exchange rate policies with reference to the euro. But these countries still will benefit from the additional credibility that will accrue from assigning monetary policy to a central bank with a reputation for pursuing policies of price stability and a guarantee of economic and political independence. And they will value having input into the formulation of Europe's common monetary policy.

Moreover, there are likely to be few alternatives. While a number of the accession economies have recently moved in the direction of greater exchange rate flexibility for lack of another mechanism for coping with volatile capital flows, this is not a comfortable state of affairs (Calvo and Reinhart 2000). It is likely to become less so as the accession economies join the European Union: Their EU partners, concerned about low-wage competition from the east, are likely to press for measures to limit exchange-rate variability vis-a-vis the euro. In particular, they are likely to insist on a relatively strict interpretation of the provision of the Maastricht Treaty that requires countries that are not yet part of the monetary union, and especially those seeking to qualify, to participate in an ERM II that will constrain the flexibility of their exchange rates. Exchange rate bands will in turn heighten crisis risk.[26] One solution, of course, is to move as far as possible in the other direction, to an Estonian- or Bulgarian-style currency board. But this has no advantages relative to monetary union and the disadvantage that the country operating it has no voice in formulating the common monetary policy.[27]

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[26] We return to this below.

[27] The reduction in currency risk from the adoption of the euro may be accompanied by an increase in country risk if the danger of banking crises rises significantly. But we do not think that this possibility is likely to deter the accession economies from their pursuit of early entry into the euro area.

Driven by these motivations, the accession economies will want to join the monetary union as quickly as possible. But will they satisfy the convergence criteria? On the debt and deficit criteria that were the sticking points for the Club Med countries, most of the prospective new members are currently in a favorable position, since they possess limited non-inflationary options for financing deficits and inherited relatively light public debts (Table 5). They rate less favorably in terms of the inflation and interest-rate criteria, and the fact that inflation tends to be high in relatively fast growing economies (the Balassa-Samuelson problem) suggests that satisfying the inflation criterion will be a challenge (assuming that the institutional prerequisites for fast growth are put in place). But experience elsewhere in Europe suggests that these variables — interest rates especially — respond quickly to prospects for EMU membership. On all these grounds, accepting new EU members into the monetary union is unlikely to be seen as threatening the stability of the incumbents; if anything, the danger that member states left out may be tempted to manipulate their exchange rates in pursuit of a competitive advantage may be perceived as the greater threat.

It is not obvious that additional difficulties in meeting the convergence criteria will emerge in the next five years. While Eastern European populations are aging, which will increase fiscal burdens related to pensions and health care, demographic change is no faster than in the West. While there are demands for additional infrastructure investment, our econometric results suggest that such expenditure will do much less to boost growth than institutional upgrading that requires political rather than financial capital; hence, there is unlikely to be overwhelming pressure for budgetary outlays for infrastructure. Complying with EU environmental standards, which is part of the *acqui communitaire*, will cost the prospective

members between 1 and 2 per cent of GDP, a significant but not debilitating amount.[28]

Even if the accession economies satisfy the convergence criteria, might not incumbent members of the monetary union still try to keep them out? Perhaps, but history and theory suggest that they are unlikely to succeed. The new members will have blocking power in the Ecofin Council over a variety of matters requiring unanimous consent.[29] They can use that power to make life miserable for the incumbents if the latter attempt to delay EMU enlargement. This was precisely the situation that led the Maastricht entry criteria to be interpreted flexibly in 1997 and for all 12 EU member states wishing to join the monetary union to be deemed qualified either immediately or within two years of the inauguration of Stage III.

The most serious concern, highlighted by recent events in Turkey, is probably the potential for banking problems. A few accession economies (Estonia, for example) have solved the problems created by lax corporate governance, poor internal controls and generous public guarantees by internationalizing their banking systems, but they are the exception to the rule. As Turkey's experience serves to remind, disinflation and tightening budget constraints can create serious difficulties for weak financial systems. While the incumbent members of the monetary union may be reluctant to admit new members with weak banking systems for fear that banking crises would apply bailout pressure to the ECB, criteria relating to the state of the banking system are conspicuously absent from the Maastricht Treaty. But a banking crisis occurring before the decision was taken to admit a candidate country would likely jeopardize the ability of

[28] The estimate is from Dziegielewska (2000).

[29] Even if the number of such issues has been slightly reduced by the Nice Summit. See Baldwin et al. (2000).

the latter to satisfy the precondition of participating in the ERM-II without involuntary devaluations. Among the most dramatic consequences of a banking crisis is to jeopardize a country's exchange-rate commitment. Knowing that the authorities will have to inject liquidity to prop up the banking system, currency speculators have an incentive to attack the currency.[30] Thus, a banking crisis could force an ERM-II member to devalue involuntarily, in turn providing the EU a defensible rationale for denying it early admission to the monetary union.[31]

We think that early admission to the monetary union remains the most likely scenario. Major financial sector problems are by no means certain between now and the middle of the decade. The readiness of governments to defend their ERM-II bands, even if doing so tightens the screws on distressed financial institutions, will be great if admission to the monetary union hinges on their success in doing so; given the deep and abiding desire of the accession economies to secure entry, their exchange rate bands may enjoy unusual credibility as they approach the EMU decision date.[32] Even if there are serious problems in the banking sector, assistance from the IMF (as in the case of Turkey) or the EU itself may reconcile early intervention with no changes in ERM-II bands. Though we see serious banking-sector problems as a risk, we still see early EMU membership as the most likely outcome.

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[30] This is the well-known twin-crisis problem, empirical studies of which have shown the dominant direction of causality as running from banking crises to currency crises (see e.g. Kaminsky and Reinhart 1998).

[31] Recapitalizing the problem banks and making good on blanket guarantees to depositors could also create a substantial fiscal obligation that could jeopardize efforts to satisfy the debt and deficit criteria.

[32] In other words, the commitment to qualify for monetary union is much greater than was the case in, say, Scandinavia in the early 1990s, when exchange rate pegs were sacrificed in order to avoid doing further damage to troubled banking systems.

## 4. Implications for ECB Policy Formulation

All these are arguments for expecting a larger, more heterogeneous monetary union at an early date. But the real stumbling bloc to granting admission to these additional members may be the ability of euroland institutions to handle larger numbers.

A larger, more heterogeneous monetary union will complicate life for the ECB. Enlargement to include a significant number of accession economies increases the likelihood of the six Executive Board members, whose decisions will presumably be guided to a considerable extent by conditions in the euro zone as a whole, being outvoted by a coalition of national representatives who prefer a different policy suitable for only a small part of the EMU economy. One might imagine the nine members of the 1998 and 2000 Accession Groups, for example, enjoying catch-up growth while suffering from relatively high Balassa-Samuelson inflation, allying with Finland, Ireland, Italy, Portugal, Spain and Greece, where conditions are similar, to demand anti-inflationary interest rate hikes that choke off expansion in the rest of Euroland, whose six national representatives, together with the six members at large, can command only a minority of votes. Countries accounting for less than a third of euro-zone economic activity, where conditions were quite different from those in the rest of the monetary union, could dictate

the common monetary policy.[33]

This assumes that national representatives are influenced in their monetary policy decision making by national — as opposed to EMU-wide — conditions.[34] The evidence on voting by regional Reserve Bank governors in the United States is consistent with this view.[35] Even if this is not the case, there remains the danger that such a large number of Governing Council members will produce gridlock by increasing decision-making costs. Six governing board members plus anywhere from 17 to 28 national central bank governors will create large-numbers problems for the Governing Council: it would take a very large conference table to even seat the members.[36] This visual metaphor suggests the difficulty of building the consensus necessary for the unanimity that is characteristic of central banks whose policy decisions are regarded as authoritative. As Baldwin et al. (2000) observe, an ECB that was slow to raise interest rates when inflation was accelerating or to cut them when growth was slowing, reflecting its inability to make quick decisions, would enjoy neither policy credibility nor

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[33] Baldwin et al. (2000) suggest a more realistic scenario which recognizes the agenda-setting power of the President of the ECB, in which the President tables a proposal for a change in interest rates, starting with the policy that is optimal for Euroland, Governing Council members then vote up or down, and if it fails to pass he revises that proposal in the direction of the status quo. The outcome is plausibly a policy that responds less to changing conditions in the monetary union as a whole than is optimal.

[34] It is not necessary to assume for present purposes that central bank governors on the Governing Council pay attention only to national conditions when voting on monetary policy, only that they are influenced by local conditions to a greater extent than are members of the Executive Board.

[35] See Eichengreen (1993) for a survey.

[36] Imagine that every member is allowed to make a 15 minute opening statement. Then it would take a day to dispense with the opening ceremonies.

political support.

This large-numbers problem suggests reducing the number of voting members of the Governing Council, while the regional-interests problem suggests reducing the number of national central bank governors relative to Executive Board members. At the Nice Summit, EU leaders took a first step in this direction by inserting in their draft treaty a clause allowing for changes in the ECB's decision-making procedures without the need to call another inter-governmental conference. But only a few days before the Nice Summit the ECB issued a statement reminding leaders that 'the core constitutional principle of government of the monetary policy of the ECB is "'one member, one vote." How to square this circle is not clear. Proposals include:

- An FOMC-like solution, in which national central bankers rotate on and off the Governing Council and the number entitled to vote at any one time is never more than five (there being six members of the Executive Board).
- An IMF-like solution, in which groups of countries form constituencies and the chair rotates among the members.
- Stripping the national central bank governors of their voting power over monetary policy while allowing them to continue to attend policy meetings.
- Giving additional votes to Executive Board members.
- Empowering the Ecofin Council to set inflation targets and limit the ECB's mandate to achieving them.

The fourth of these options is perhaps the least ambitious and therefore the least objectionable politically, but it is also least able to address the problems at hand. While it would prevent regional interests from becoming even more dominant with the enlargement of the monetary union, it would not solve the large-numbers problem.[37]

Stripping national central bank governors of their voting power would be the cleanest solution but the least feasible politically.[38] Objections are of two sorts: first, national central bank governors and their staffs are an importance source of information on local market conditions, which would be jeopardized by this proposal; and, second, the accountability of Europe's monetary policy makers would be further weakened if national central bankers, who are ultimately accountable to their domestic polities, were removed from the Governing Council.[39] Allowing the national central banks to attend Executive Board meetings and even to speak has been suggested as a way of addressing these concerns, but this is unlikely to placate the critics.

Of these limited reforms, perhaps the most feasible and useful would be to empower the Ecofin Council to set an inflation target and overall policy guidelines for monetary policy. This would streamline ECB decision making by providing a framework for its interest-rate

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[37]And even in the case of this relatively modest proposal, there is likely to be considerable resistance to creating what would amount to first- and second-class members of the Governing Council.

[38] Those who would resist giving Executive Board members additional votes would now register the same objections in spades.

[39] We are assuming that central bank governors and staff share their information with other decision makers in the ECB policy process. We return to this assumption below.

decisions.[40] The ECB Board would have instrument independence, in other words, but not goal independence. The guidelines provided by the Ecofin Council would provide an "agenda-setting" function for the deliberations of the ECB Board. But this would not change the fact that in an expanded monetary union there would still be an unprecedented number of Governing Board members who would have to agree on these strategic decisions, nor would it entirely eliminate the danger of an overly slow response or even inaction.

An FOMC-style solution, in which a rotating cast of 5 national central bank governors serve, say, staggered 12 month terms on the Governing Council, allowing all regions to be represented but solving both the large numbers and regional-dominance problems, seems like an intuitive solution to American observers. The reorganization of the Bundesbank following German reunification provides something of a precedent. Absent reorganization, GEMU would have expanded the Bundesbank council to 26 members (10 members of the directorate and 16 *land* central bank presidents). This number being considered unworkable, the decision was taken to merge a number of *land* central banks, reducing their number to nine.[41] The parallel with a constituency system is unmistakable. But Europeans are equally firm in their objections: "It is unrealistic to ask the president of the Bundesbank to leave his seat to the Central Bank governor from Malta," as one set of academics has put it.[42] True enough, but this misunderstands how rotation on and off the FOMC works: the representative of the dominant financial center, the

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[40] In addition, it would enhance political accountability.

[41] At the same time the number of members of the directorate was reduced from ten to eight.

[42] Baldwin et al. (2000).

President of the Federal Reserve Bank of New York, has a permanent seat, and the Presidents of the Chicago and Cleveland Reserve Banks (historically, financial centers of the second order) take turns, while the other nine rotate through the remaining three seats. While European countries would resist moving to such a system because they are accustomed to universal representation on the Council, it is worth recalling that neither was rotation the initial arrangement for the Federal Reserve committee charged with making monetary policy; rather, it was phased in after a number of years in response to evidence of the unworkability of earlier arrangements.

A more serious problem is that Europe has no one dominant financial center, reflecting many years without a single market or a single currency. The European equivalent would be for the central bank governors of France and Germany (plus Italy and the UK?) to have permanent seats while the others rotate. But how many others? If the goal was to give the Executive Board a majority, this might leave only one rotating seat, which would not appeal to the smaller members. If the solution is to raise the number of votes cast by each Executive Board member, which would permit more rotating seats, then it is not clear why the same result cannot be achieved by giving Executive Board members more votes but leaving the status quo otherwise unchanged.

A fourth possibility is reform along the lines of the IMF constituency system. The 20-plus countries participating in the monetary union could be assembled into constituencies, say, four or five in number, each possessing a single vote. Germany, Austria, Hungary and Poland might constitute a constitency, for example.[43] The chair would be responsible for representing

[43] As would Finland and Estonia, the Benelux countries, and Portugal and Spain.

the views of the members of his constituency, in much the same manner that the President of the Bundesbank is responsible for representing in the ECB the views of the Bundesbank Council.[44] This would solve the large numbers problem: it would give a majority of votes to the Executive Board; and it would protect channels for conveying information from national central banks to the Governing Council. If constituencies were comprised of a mix of high- and low-income, slow- and fast-growing economies, the danger that policy would be driven by the divergent preferences of one or the other group would be diminished.

To be sure, this solution raises as many questions as it answers. How would constituencies be formed (regionally, randomly, as a function of economic ties)? How would decision making take place within the constituencies (would their members vote or otherwise achieve a consensus among themselves, and what would be the balance of formal powers between large and small countries)? Would the chair rotate, and or would the representative of a particular country retain it over time (as is the case of some IMF constituencies)?

Note that so far we have assumed that voting members of the Governing Council disclose all relevant information on their respective national economies in the policy discussions preceding the vote. However, governors who act on the basis of national preferences have an incentive to make strategic use of their private information in the hope of tipping the vote in their favor. One can think of voting as the mechanism through which such information is revealed.[45] If this is the case, then the constituency mechanism may worsen the information

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[44] Made of up the Bundesbank Board together with the Presidents of the Land Central Banks.

[45]Imagine that the Governor of the Bank of France has private information on how an increase in oil prices is affecting inflation and unemployment in France, causing both of them to be

problem: members of a constituency would first play the asymmetric information game within the constituency, and then constituency chairs would play it at the level of the Governing Council. The upshot is that, whatever reform is introduced, care will have to be given to the design of incentives and mechanisms for information revelation.

While neither the constituency solution nor the alternatives meet every objection, there are compelling arguments for some kind of reform. Baldwin et al. (2000) observe that it is important to set these changes in motion prior to enlargement of the monetary union. The larger the numbers, the more difficult it will be to agree on changes; status quo bias will grow stronger. Moreover, small countries, who have disproportionate power at present and therefore will have the most to lose under these kind of reforms, will become more numerous and collectively more powerful. The history of the institutional reforms undertaken by the U.S. Federal Reserve System suggests that such reforms can be pushed through over the objections of regional interests after the fact, but that it may then take a crisis to galvanize the authorities into action.[46] In the United States this meant the Great Depression. These are not the conditions under which Europe should prefer to modernize and streamline decision making in its monetary union.

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higher than the EMU average. Imagine further that it is known that the Governor of the Bank of France is less inflation averse than the EMU average. If she discloses her private information prior to the vote, consensus is likely to form around an interest rate hike that is larger than the French governor would like, France being sufficiently large to affect overall EMU inflation. Hence, the Governor has an incentive to keep her private information private. The vote then leads to an interest rate hike that is smaller than is socially optimal. But the French Governor's vote in favor of the smaller increase reveals her private information: because it is known that she is less inflation averse than the EMU average, the other governors can infer by how much inflation and unemployment are rising in France from the size of the interest rate increase to which the French governor agrees.

[46] See Eichengreen (1992).

## 5. Implications for Prudential Supervision and Lending in the Last Resort

One of the most visible effects of the euro has been to encourage consolidation in European banking. The advent of the euro (combined with the First and Second Banking Directives, and the Single Market generally) has done much to reduce the barriers to cross-border banking. And by fueling the explosive growth of European securities markets and creating new alternatives to bank intermediation, the euro has forced European banks to contemplate mergers and strategic alliances to maintain their profitability.[47] While most consolidation to date has been at the national level, we have already seen the first cross-border mergers and acquisitions, and more are sure to come.

These trends have already raised questions about the compatibility of the single currency and a single, integrated banking system with 15 distinct national systems of prudential regulation (see e.g. Bini-Smaghi and Gros 2000). Although the regulatory part of "sup and reg" has been harmonized by mutual recognition and EU directives defining minimum requirements for the regulation of banking systems, prudential supervision is another matter. Different national supervisors can and do interpret EU directives differently. There is little to prevent them from looking the other way when their national champions assume additional risk in the attempt to get a leg up in international competition. The principle that supervision and regulation are the responsibility of the country in which a bank is chartered becomes problematic when banks do

[47] To an extent that consolidation is also independent of the euro, of course: changes in technology and financial regulation worldwide have combined to accentuate economies of scale and scope in commercial banking. The effects are evident in, inter alia, the tendency for Spanish banks to acquire subsidiaries and strategic partners throughout Latin America.

much of their business internationally.[48] And when many of the repercussions of banking problems are external to the country in which they originate, there will be a tendency for the responsible supervisor to under-invest in their prevention relative to the social optimum.

These are all reasons why national supervision is worrisome in a financially-integrated Europe.[49] They suggest that the advent of the euro will create pressure for the EU to establish a centralized supervisory agency, either within the ECB or independent of it. While there is an argument for regulatory competition to prevent over-regulation and to encourage regulatory innovation, this model becomes more problematic as geographical and product-market segmentation break down and problems in one regulator's domain have a tendency to spill over into the others.[50] We suspect that these considerations will eventually motivate an effort to reallocate financial supervisory functions to the level of the union, or at the very least to coordinate them more closely among member states.

Will enlargement to the east accentuate this tendency to centralize supervisory functions?

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[48] For example, when the supervisor has to evaluate the risk of doing business with a counterparty in another country.

[49] And in a financially-integrated world, for that matter. The difference in Europe, of course, is that there is some precedent for considering centralizing the supervisory function at the EU level.

[50] Thus, the traditional argument for national supervision on the grounds that national supervisors are "closer to the ground" (better informed about risks to stability in relevant market) breaks down when the market is no longer defined along national lines. Not surprisingly, the collapse of product market segmentation has already led some countries, like the UK, to establish single integrated regulatory agencies. We anticipate that even the country in which the two authors reside, despite its own rich history of regulatory competition, will move in this direction with the elimination of traditional restrictions on cross-border bank branching and on the separation between commercial and investment banking.

The fact that the new members will have the EU's weakest banking systems and least experienced supervisory authorities suggests a positive answer. At the same time there are a variety of reasons to think that any such effect of eastward expansion will be second order. The banking systems of the accession economies are small, as noted above, relative to the countries in question and even more relative to Europe.[51] Financial distress will therefore create less pressure for a bailout on too-big-to-fail grounds and less scope for contagion through the interbank market than would be the case of the failure a large Western European institution. Moreover, if the continued integration and consolidation of European banking causes banks in the new member states to be acquired by larger institutions from elsewhere in the EU (as seems likely), then this will automatically remedy some of the internal weaknesses of Eastern European intermediaries and export key supervisory functions to more experienced agencies in the continent's west. Thus, while we think that monetary union will create pressure for the centralization of some supervisory functions at the EU level, enlargement to the east will reinforce at most slightly any tendency in this direction.

Should those functions be housed in the central bank or in an independent agency? Arguments for making the supervisory agency part of the central bank are (i) that supervisory information is valuable for the conduct of monetary policy, and (ii) that the monetary authority must act as lender of last resort in times of crisis, an activity that must be informed by the information that only a supervisory authority can possess. Arguments for an independent agency are (i) that housing this function in the central bank creates the potential for conflict with the

[51] The relevant statistic, noted above, is that the M3 of the ten applicant countries in Central and Eastern Europe is a mere 3 per cent of that of the 12 EMU incumbents.

monetary-policy function (there is some evidence that central banks responsible for prudential supervision are more susceptible to inflationary pressures) and (ii) that even a central bank with no supervisory authority can obtain in short order the information it needs in order to carry out lender of last resort activities.[52] We are skeptical of this last point. It seems implausible, for example, that the Federal Reserve would have moved so quickly to inject large amounts of uncollateralized credit into the U.S. banking system in response to the Bank of New York crisis in 1985 or that it would have been in a position to orchestrate the private-sector rescue of Long-Term Capital Management in 1998 had it not been able to obtain first-hand information on the nature of these crises. We therefore suspect that the ECB will acquire additional supervisory responsibilities with the passage of time.

## 6. Implications for Fiscal Policy

The discussion on the pros and cons of coordinating fiscal policies in Europe has heated up in recent months due to the controversy over Ireland. At times, unfortunately, this heat appears to have come at the expense of light. In the game-theoretic literature, coordination is interpreted as joint policymaking.[53] We think of coordination as EU-level decision making about the optimal stance of national fiscal policies. However, we allow this joint decision making to lead to the implementation of the policies that would correspond to the Nash equilibrium if the latter generates a superior outcome. This matters because fiscal coordination alone involves only a subset of the players in the intra-EMU economic policy game: The coalition of the governments

[52]For discussion, see Peek, Rosengreen and Tootell (1999) and Goodhart and Schoenmaker (1993).

[53] Joint minimization of a weighted average of the national policymakers' loss functions.

in the fiscal coordination equilibrium is still playing Nash against the ECB. It is well known among game theorists that coordination among a subset of players can generate an outcome that is inferior to the overall Nash equilibrium.[54] When this is the case, governments deciding together will prefer to jointly implement the so-called "non-cooperative" Nash strategies.

This said, there is a case for coordinating national fiscal policies if there exist nonpecuniary spillovers across borders (which will be the case in the presence of domestic distortions — wage rigidities, for example). Just how fiscal policies should be coordinated depends, of course, on the nature of the distortions (and therefore the size and direction of spillovers) and on how the monetary authority responds to changes in fiscal policies. But the case for fiscal coordination is general.

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[54] We provide examples of this in the context of intra-EMU fiscal coordination in Eichengreen and Ghironi (1997, 1999). Suppose there is a shock that causes inflation and unemployment in a two-country monetary union in which the ECB cares mainly about inflation and the governments care mainly about employment. The ECB reacts to the shock by contracting monetary policy. Governments react by relaxing the fiscal stance. Consider a case in which government spending is financed through lump-sum taxation—a standard Keynesian scenario. For reasonable parameter values, a domestic fiscal expansion (an increase in spending) has an expansionary impact on the foreign economy by raising the demand for foreign as well as domestic output. If this is the case, the fiscal coordination equilibrium requires governments to expand more than in the Nash equilibrium to internalize the positive externality to the other economy. But more expansionary fiscal policies cause inflation to rise in the union. The ECB reacts to the fiscal policy adjustment by contracting more aggressively, which has a negative impact on employment. The final outcome can be that all—or some—players, possibly the governments, are worse off than in the Nash equilibrium. A similar reasoning applies to a situation in which government spending is financed through distortionary taxation of firms' revenues—a scenario that we call "anti-Keynesian." In this case, for reasonable parameter values, governments react to the shock by lowering taxes (and spending) to sustain employment from the supply side. This has favorable consequences for inflation, as an excess supply puts downward pressure on prices. However, an excess supply of domestic goods imposes a negative externality on the foreign economy. If governments internalize the externality, they cut taxes by less. But smaller tax cuts do less to stabilize inflation. Again, the ECB reacts by contracting more aggressively, and all (or some) players can end up being worse off.

**Procedures.** The mutual surveillance procedure is at the heart of the process of fiscal coordination in the EU. Under it, the Ecofin Council formulates a draft of broad guidelines for the economic policies of the member states and the union, acting by qualified majority on a recommendation from the Commission. The draft is then reported to the European Council, which has the task of reaching a conclusion on Ecofin's draft and turning it into a formal policy recommendation acting by qualified majority. The Council then informs the European Parliament of its recommendation.

Member states are required to submit stability or convergence programs annually, containing growth forecasts, fiscal projections, and so forth. If a member's economic policies are found inconsistent with the guidelines, the Ecofin Council (which is empowered to monitor economic developments to ensure their consistency with the Council's guidelines) can then make recommendations to the state concerned, acting by qualified majority and on recommendation from the Commission.[55] This procedure had its baptism by fire in 2001, with the Commission's public reprimand of Ireland's budget policy on the grounds that it is procyclical and too expansionary to be consistent with the Council's broad policy guidelines.[56]

The other leg of the process is the Stability and Growth Pact, consisting of a resolution by

[55] If the Council makes its recommendations public, its President may be invited to appear before the competent committee of the European Parliament.

[56] Although Irish public finances are very healthy (the budget surplus is nearly 5 percent of GDP, and debt is expected to fall to less than 25 percent of GDP by 2003), there are worries that the economy is overheating, prompting the Commission to recommend a still tighter fiscal policy. In addition, Ireland is still receiving substantial EU aid to support its convergence to EU economic standards. Members of the Ecofin Council voiced the opinion that favorable tax breaks to Irish industry border dangerously on free riding in the current context. The combination of these factors led the Commission and the Council to publicly reprimand Ireland and recommend a revision of its intended budget policy.

the European Council and two Council Regulations. These oblige the member states to maintain "sound budgetary positions close to balance or in surplus" in order for them to be able "to deal with normal cyclical fluctuations while keeping the government deficit within the reference value of 3% of GDP."[57] The Commission is in charge of monitoring budgetary developments in the member states, based actual and prospective deviations of deficits and debts from their 3 and 60 per cent reference values.[58] If a member state fails to fulfill one or more of these requirements, the Commission prepares a report.[59] The Economic and Financial Committee (composed of representatives of the member states, the Commission and the ECB) formulates an opinion on the Commission's report, and the Commission then delivers an opinion to the Ecofin Council upon concluding that an excessive deficit exists. The Ecofin Council retains the power to make its own assessment of the situation, acting by qualified majority on a recommendation from the Commission.

Upon concluding that an excessive deficit exists, the Ecofin Council makes recommendations for its elimination. If the state in question fails to take action within a specific period of time (generally, a year), the Ecofin Council can make its recommendations public. If failure to act persists, additional actions are then triggered. The Ecofin Council may require the state concerned to publish additional information before issuing bonds and securities, invite the European Investment Bank to reconsider its lending to the state concerned, require that state to

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[57] Resolution of the European Council on the Stability and Growth Pact, Amsterdam, 17 June 1997.

[58] The two reference values are specified in a protocol attached to the Maastricht Treaty.

[59] The Commission may prepare a report even in cases where the fiscal requirements are met but it is of the opinion that the risk of an excessive deficit exists.

make a non-interest bearing deposit with the EU, and impose monetary fines. Decisions on penalties for noncompliance must be reached acting on a recommendation from the Commission by a two-thirds majority of weighted votes.[60]

**Assessment.** Asymmetric information creates an incentive to delay agreeing to an adjustment in the hope that it may be possible to extract more generous concessions from one's partners in the future; with full information, in contrast, agreement should be immediate.[61] The EU's mutual surveillance procedures seem well tailored to encourage information sharing and thereby facilitate policy coordination. Their limitation is that they do not contain high-powered incentives for compliance with the agreement for mutually-advantageous adjustments, other than the embarrassment that a government will suffer if the Ecofin Council goes public with its recommendations.[62]

The argument for the Stability Pact as an input into the process of coordination is that it provides a focal point — a second-best approximation to first-best coordinated national fiscal policies whose attainment is rendered difficult by information and negotiation costs. The argument is analogous to Canzoneri and Henderson's (1991) case for a commitment to fix the exchange rate as a surrogate for formal monetary policy coordination. It is also subject to the same limitations: namely, the results from application of the surrogate will approximate first-best

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[60] Votes of the representative of the state concerned are excluded.

[61] This is the implication of, inter alia, Alesina and Drazen's (1992) war-of-attrition model. Canzoneri and Edison (1989) show that in the presence of multiple Nash equilibria, corresponding to different degrees of information exchange, the welfare gains from information sharing alone can be substantial.

[62] This is evident in the case of Ireland, which suffered embarrassment but not pecuniary penalties as a result of its reprimand by the Ecofin Council.

coordinated policies only under very special (and not very realistic) assumptions about structures and shocks. In the present instance, only if the externality from excessive debts and deficits is to threaten financial stability, in turn intensifying the pressure on the ECB to extend an inflationary debt bailout, and only if that external effect increases very sharply when the deficit approaches or exceeds 3 per cent, does a procedure of this particular form make sense.[63] In practice it is possible to conceive of a variety of other fiscal spillovers working in very different directions, and of other plausible responses by the ECB.[64]

**Implications of Enlargement.** It is not obvious, contrary to popular supposition, that enlargement will necessarily make the policy actions that correspond to the fiscal coordination equilibrium more desirable. Because coordination would not necessarily include the ECB, it is still possible that the Nash equilibrium outcome be the rational choice of governments acting jointly.[65]

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[63] See Eichengreen and von Hagen (1996).

[64] See Eichengreen and Ghironi (1997, 1999). There, we provide examples of situations in which governments would choose jointly to implement the policies that correspond to the Nash equilibrium, as the fiscal coordination equilibrium in the absence of fiscal-monetary coordination would be inferior. The Stability Pact simply being a constraint on the policy choices, there is no reason to expect *a priori* that the constrained equilibrium would be better than the unconstrained one.

[65] The economic intuition is the same as in the examples in the second footnote of this section. The intuition is still valid when the model monetary union includes more than two countries. To verify the point, we modified our 1999 model to analyze alternative scenarios after an oil-type shock. In the first scenario, a two country monetary union interacts with two outsider countries, each of them half the size of the union. Fiscal policies have standard Keynesian effects in the union. They are more distortionary outside. The outsider central banks choose their money supplies in a non-cooperative fashion. In the second scenario, the monetary union encompasses all four countries, though fiscal policy remains distortionary in the new members. In the third scenario, fiscal reform in the new members has made fiscal policy Keynesian everywhere in the union. We found no support for the idea that enlargement would make the policies that

The most straightforward implication of enlargement for fiscal policy probably derives from the fact that the mutual surveillance procedure and the Stability Pact both require a degree of consensus. Recommendations and sanctions require agreement by a qualified majority of member states. The requisite consensus may become harder to attain in a larger and more heterogeneous EU, where attitudes toward fiscal policy, fiscal needs and fiscal instruments differ more widely.

Moreover, the new member states will be more dependent than the incumbents on discretionary changes in fiscal policy. IMF and OECD estimates suggest that the budget balance is more elastic with respect to the cycle in Europe's relatively high-income economies, not surprisingly since these countries rely more on progressive income and corporate taxes and relatively less on the proportional VAT. The response of automatic stabilizers to the cycle is easier to forecast and assess than is the response of the political system ( automatic changes in the fiscal balance are easier to anticipate than discretionary ones). This change in fiscal response will thus increase the difficulty of anticipating changes in fiscal policies consistent with effective coordination and ratchet up the speed with which recommendations will have to be issued. This suggests the need to devote more resources to mutual surveillance so that information can be assembled and processed and recommendations can be reached more quickly. It suggests

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correspond to the intra-EMU fiscal coordination equilibrium generally more desirable for governments. EMU governments were worse off in the intra-EMU fiscal coordination equilibrium in the first scenario. Only accession governments were better off in the coordination equilibrium in the second scenario, and all governments were worse off in the third one. Again, the ECB's non-cooperative reaction to the fiscal coalition policies made the Nash equilibrium preferable for at least some governments in all cases. As in our previous work, governments-ECB coordination alters this outcome, but it requires the ECB to compromise on its aversion to inflation, an outcome that we deem unlikely.

streamlining the process whereby recommendations pass from the European Commission to the Ecofin Council to the European Council and then finally to the European Parliament.

The Commission's recent proposals are consistent with this quest for transparency and simplification. They include the creation of a working group of senior treasury officials within the Economic and Financial Committee to help prepare meetings of the "Euro Group" finance ministers (the group of finance ministers of EU members participating in the monetary union, who currently meet on an informal basis).[66] The Commission suggested that EMU members should inform each other and the Commission itself before adopting national economic policies that were likely to impose externalities on the union. In turn, the Commission should evaluate the euro-zone policy mix twice a year. Finally, consistent with arguments in Jacquet and Pisani-Ferry (2000), the Commission called for an economic policy code of conduct, a set of coherent rules designed to increase policy credibility and predictability, and the formulation of "general principles" on budgetary and (later) structural policies.[67]

Continuing interaction among fiscal policymakers in the Euro Group, better statistical information, and more extensive sharing of information and intentions prior to the implementation of policies are all worthwhile steps toward more effective coordination of fiscal policies in EMU. This said, governments' reaction to the Commission has not been encouraging. Despite Didier

[66] At present, the Euro Group agendas are discussed by the senior treasury officials of all 15 EU member states over lunch, after the formal meetings of the Economic and Financial Committee have closed.

[67] Increased predictability of economic policies would facilitate the task of the ECB.

Reynders' support for a strengthening of the the Euro Group[68], Ecofin members that are not yet in the group fear the division that the proposal would create within the Ecofin Council. Their argument is that the latter, and not the Euro Group, should remain the official forum for coordination of economic policies. Some key governments—including those of France, Britain, and the Netherlands—have resisted the idea of sharing more information on policy actions prior to their implementation.

The lack of consensus on the Commission's proposals suggests that, despite the Commission's efforts, fiscal policy coordination remains an intergovernmental issue. This makes the Ecofin Council the natural forum of discussion whether or not members of the Euro Group decide to act as a coalition within it. Streamlining Ecofin's functioning and strengthening its effectiveness -- possibly at the cost of less rather than more involvement of the Commission -- will be a requirement for successful post-enlargement coordination. The creation of a permanent institution with a multi-national research and analysis staff that operates on a continuing basis and where Ecofin members meet with higher frequency than is currently the case would be a serious step in this direction.[69]

Even now a very different fiscal policy is called for in fast-growing Ireland than in slow-growing Italy. These differences will be accentuated if the monetary union encompasses economies with even more diverse capacities to grow. The 3 per cent reference value for budget deficits may then provide inadequate leeway for a new member in recession to run a very different

[68] At the time this paper is written, Mr. Reynders is the Belgian finance minister and president of the Euro Group.

[69] It would contribute to lend the stronger legitimacy of ongoing coordination to the implementation of Nash equilibrium policies when this is indeed desirable.

fiscal policy than the EU average. This is an argument, if another was needed, for flexible, reasoned application of the Stability Pact. It is an argument in favor of Ecofin's broad guidelines that recognize that "one size does *not* fit all." In this respect, the recent reprimand of Ireland may not have been the most sage course of action. The Commission's reprimand and the recommendation of a policy adjustment also produce obvious -- and potentially quite large -- public relations costs in exchange for a non-existent credibility gain: It is not by stomping on the small players that the Commission and the Council show that they will be able to discipline Italy when Silvio Berlusconi cuts taxes after winning the coming elections (if he wins)!

Policy coordination is relevant when countries impose externalities on one another. In EMU, this is certainly the case of Italy. If a country's actions have little or no impact on other countries, coordination is irrelevant for the latter and may be welfare decreasing for the former. This is the case of Ireland. The case for coordination and constraining potentially destabilizing actions certainly exists for the larger EMU members.[70] Coordination among them is likely to benefit the smaller partners too. These should be subject to close, public scrutiny and harsh judgment if unruly behavior by a number of them becomes destabilizing through aggregation (or if persistence of unruly behavior by a small country risks generating such aggregation via "domino effects"). Otherwise, it would be better to ride the wave of success stories to gain legitimacy and public support for the evolution of EMU.

Thus, our two recommendations are clearly complementary: flexibility in the design of policy guidelines and in the application of the Stability Pact will provide the fiscal leeway that a

[70] See also Jacquet and Pisani-Ferry (2000) on this.

more heterogeneous EMU requires, but it will also create the possibility of larger cross-border fiscal externalities, heightening the need for effective mutual surveillance and coordination.

## 7. Implications for Labor Markets

Enlargement of the European Union will provide Western Europe with a considerable reservoir of labor with incentives to move. Admitting the ten Central and Eastern European candidate countries will expand the union's population by a third (equivalent to the increase in German population due to reunification).[71] Not only are wages in the accession economies only a fraction of those in the monetary union (half of EMU levels in the Luxembourg Group countries, a third of EMU levels in the Helsinki Group countries), but unemployment rates are uniformly higher in the accession economies (this was the case at the end of 1999 in Poland, Hungary, the Czech Republic and Poland, the four most important cases from the present point of view, and also in Bulgaria, Estonia, Slovenia, the Slovak Republic, and Romania). The question is whether these incentives to relocate will produce the more mobile labor force needed to enhance the response of the monetary union to asymmetric shocks.

The answer, in our view, is yes, but to a limited extent, at least over the time frame relevant to this paper. Migration depends on more than wage and unemployment differentials. While per capita incomes in East Germany were a third of West German levels immediately following reunification (almost exactly equivalent to the differential between the EU and the ten CEEC accession candidates today), the entire East German labor force did not migrate to West

[71] The analogy obviously makes it tempting to invoke evidence from German unification as a way of anticipating the effects, which we do below.

Germany. It can be argued that large fiscal transfers to the new German *lander* undermined the incentive to move, but also important were large differences in housing costs and the absence of well-developed migrant networks. Burda (1992) concludes that these non-wage, non-unemployment related factors dominated migration decisions in the immediate post-unification years.[72]

This will similarly be the case immediately following accession. Large housing-cost differentials will discourage migration. Migrant networks will be underdeveloped. Both obstacles will dissipate with time, but they will limit labor mobility in the short run.

What segments of the labor market will become integrated most quickly? The evidence from German unification (e.g. Hunt 2000) is that the most- and least-skilled workers have the greatest tendency to move. This suggests that the Western European members of the Union will import unskilled workers for low-paying, physically-demanding jobs when their labor markets are tight, a tendency that already manifests itself in the legions of Southern and Eastern European workers employed in Ireland's restaurant trade and in the Albanian and Bulgarian workers engaged in harvest labor, legally and illegally, in Greece. University graduates also have a disproportionate tendency to move, reflecting their possession of the linguistic and social skills needed to adjust to life in another country. As the mutual recognition of technical credentials is extended to the accession economies, they are likely to show up as architects and laboratory technicians in Western European countries with tight labor markets. This suggests

[72] Historical evidence similarly suggests that migrant networks are an extremely important determinant of labor flows (Hatton and Williamson 1998). Hunt (2000) provides supportive evidence from German unification, although she attaches more importance to wage differentials and unemployment status than the earlier work of Burda.

that the informal sector and the service sector will be the main beneficiaries of more elastic labor supplies, while manufacturing will be less affected.

Thus, while greater labor mobility is likely to be one of the beneficial side-effects of eastward expansion for Europe's monetary union, the extent of the change should not be exaggerated, especially in the short run when migrant networks are underdeveloped and manufacturing continues to play a large role in the European economy. To revisit an earlier theme of this paper, this makes proper fiscal policy management and coordination all the more important within the expanded monetary union.

## 8. Conclusion

We have argued that the make-up of Europe's monetary union is likely to be radically different as soon as five years from now. If accession negotiations proceed smoothly, EMU will quickly be expanded to include a substantial number of new Eastern European members, since these countries will be anxious to join and since they should be able to satisfy the convergence criteria. The main obstacles to their doing so are the risk of an EMS-II crisis emanating from problems in their banking systems. But in contrast to the situation in countries like Denmark and the UK in 1992, the occasion of the last EMS crisis, the political will to remain on the glide path to monetary union will be strong, increasing the likelihood that even serious financial difficulties will not throw the transition off course. This means that as early as 2006 EMU is likely to include new members with very different economic and financial structures than the incumbents and per capita incomes only half the EU average. How quickly these differences are

eliminated will turn, we have argued, on how quickly institutions are upgraded in the accession economies. But even under optimistic assumptions about institutional change, convergence will take a considerable period, given the starting point.

Our analysis suggests that the monetary union should be able to accommodate this expansion to include new members. The wide union created in 1999 has been able to handle members with quite different structures, growth rates and per capita GDPs (although, admittedly, these differences are not as large as those that will exist when EMU is expanded to the east). Expansion to the east will have the incidental benefit of enhancing labor mobility within the monetary union and thereby easing the member states' adjustment to asymmetric shocks. It will create the need to strengthen procedures for mutual surveillance of national fiscal policies and for coordinating the supervision and regulation of financial institutions at the EU level. But these are things that the European Union will have to address, eastward expansion of its monetary union or not. Eastward expansion will only intensify the pressure to do what is already necessary.

Politically, the most difficult challenge will be to reorganize decision making within the ECB. Agreement will not come easily; large countries will be reluctant to rotate off the board, and small countries will hesitate to take seats at the back of the bus. But, as the Nice Summit reveals, these are the directions in which decision making in an enlarged European Union is headed anyway. Its central bank can be no exception.

## References


Alesina, Alberto and Allan Drazen (1991), "Why Are Stabilizations Delayed?" *American Economic Review* 81, pp.1170-1188.

Baldwin, Richard, Erik Berglof, Francesco Giavazzi and Mika Widgren (2000), "EU Reforms for Tomorrow's Europe," CEPR Discussion Paper no. 2623 (November).

Bini Smaghi, Lorenzo and Daniel Gros (2000), *Open Issues in European Central Banking*, London: Macmillan.

Boeri, Tito and Herbert Brucker (2000), "The Impact of Eastern Enlargement on Employment and Labour Markets in EU Member States," unpublished manuscript, European Commission.

Bauer, Thomas and Klaus Zimmermann (1999), "Assessment of Possible Migration Pressure and Labour Market Impact Following EU Enlargement to Central and Eastern Europe," DFEE Research Report no. 138/139, London: UK Department of Education and Employment.

Buch, Claudia and Daniel Piazolo (2000), "Capital and Trade Flows in Europe and the Impact of Enlargement," Kiel Working Paper no. 1001 (September).

Burda, Michael C. (1992), "The Determinants of Est-West German Migration: Some First Results," unpublished manuscript, INSEAD, Wissenschaftszentrum Berlin, and CEPR.

Calvo, Guillermo and Carmen Reinhart (2000), "Fear of Floating," NBER Working Paper no. 7993 (November).

Canzoneri, Matthew and Hali Edison (1989), "A New Interpretation of the Coordination problem and its Empirical Significance," International Finance Discussion Paper no. 340, Washington, D.C.: Board of Governors of the Federal Reserve System.

Canzoneri, Matthew and Dale Henderson (1991), *Monetary Policy in Interdependent Economies*, Cambridge: MIT Press.

Crafts, Nicholas and Kai Kaiser (2001), "Long Term Growth Prospects in Transition Economies: A Reappraisal," unpublished manuscript, London School of Economics.

Dziegielewska, Dominika Anna (2000), "How Much Does it Cost to Join the European Union, and Who is Going to Pay for It?" IIASA Research Report no. 00-001, Laxenburg, Austria: International Institute for Applied Systems.

Eichengreen, Barry (1992), "Designing a Central Bank for Europe: A Cautionary Tale from the Early Days of the Federal Reserve System," in Matthew Canzoneri, Vittorio Grilli and Paul

Masson (eds), *Establishing a Central Bank: Issue in Europe and Lessons from the United States,* Cambridge: Cambridge University Press, pp.13-40.

Eichengreen, Barry (1993), "European Monetary Unification," *Journal of Economic Literature* 31, pp.1321-1357.

Eichengreen, Barry and Fabio Ghironi (1997), "How Will Transatlantic Policy Interactions Change with the Advent of EMU?" in Barry Eichengreen, *European Monetary Unification: Theory, Practice and Analysis,* Cambridge, Mass.: MIT Press, pp.271-322.

Eichengreen, Barry and Fabio Ghironi (1999), "Macroeconomic Tradeoffs in the United States and Europe: Fiscal Distortions and the International Monetary Regime," Working Paper no. 467, Department of Economics, Boston College.

Eichengreen, Barry and Juergen von Hagen (1996), "Fiscal Policy and Monetary Union: Federalism, Fiscal Restrictions, and the No-Bailout Rule," in Horst Siebert (ed.), *Monetary Policy in an Integrated World Economy,* Tubingen: Mohr, pp.211-231.

Goodhart, Charles and Dirk Schoenmaker (1993), "Institutional Separation Between supervisory and Monetary Agencies," Special Paper no. 52, London: LSE Financial Markets Group.

Hatton, T.J. and Jeffrey G. Williamson (1998), *The Age of Mass Migration,* New York: Oxford University Press.

Hunt, Jennifer (2000), "Why Do People Still Live in East Germany?" CEPR Discussion Paper no. 2431 (February).

Ilieva, Janet and Nigel Healey (2000), "Establishing Independent Central Banks in Transition Economies: Comparative Evidence from Twenty Countries," unpublished manuscript, Manchester Metropolitan University.

Kaminsky, Graciela and Carmen Reinhart (1998), "The Twin Crises: The Causes of Banking and Balance of Payments Problems," *American Economic Review* 89, pp.473-500.

Peek, Joe, Eric S. Rosengreen and Geoffrey M.B. Tootell (1999), "Is Bank Supervision Central to Central Banking?" *Quarterly Journal of Economics* 157, pp.629-653.

Portes, Richard and Helene Rey (1999), "The Determinants of Cross-Border Equity Flows," NBER Working paper no. 7336 (September).

Rose, Andrew K. (1999), "One Money, One Market: Estimating the Effect of Common

Currencies on Trade," NBER Working Paper no. 7432 (December).

Tulio, Giuseppe (1999), “Exchange Rate Policy of Central European Countries in the Transition to European Monetary Union,” in Paul De Grauwe and Vladimir Lavrac (eds), *Inclusion of Central European Countries in the European Monetary Union*, Boston: Kluwer, pp.63-104.

Van den Noord, Paul (2000), “The Size and Role of Automatic Fiscal Stabilizers in the 1990s and Beyond,” OECD Economics Department Working Paper no. 230 (January).

**Table 1**
**Growth Regressions, 1983-1998**

| | | |
|---|---|---|
| Constant | .131 (.950) | -.920 (1.134) |
| Fixed Effect | -.191 (.394) | -.105 (.380) |
| Africa | -.499 (.825) | -.794 (.862) |
| Latin Am. | -.431 (.796) | -.455 (.816) |
| Asia | 1.903 (.833) | 1.587 (.853) |
| EU | .215 (.796) | 3.926 (4.723) |
| Eastern Eur. | -4.548 (.897) | -2.125 (2.337) |
| Investment | 6.384 (2.419) | 9.448 (2.637) |
| Initial GDP | -1.645 (.878) | -.994 (1.076) |
| Education | 4.070 (9.590) | 17.118 (16.804) |
| Gov Consump | -.136 (.134) | -.114 (.129) |
| Institutions | 1.508 (.398) | .697 (.437) |
| EU*Invest. | | -14.351 (19.126) |
| EU*Init.GDP | | -1.189 (1.949) |
| EU*Ed | | -23.447 (25.347) |
| EU*Gov | | -2.085 (8.540) |
| EU*Inst | | 1.675 (1.999) |
| East*Inv. | | -11.842 (5.951) |
| East*In. GDP | | 3.361 (9.486) |
| East*Educ. | | -5.855 (24.193) |
| East*Gov. | | -.843 (5.042) |
| East*Inst. | | 4.006 (1.442) |
| | | |
| R-squared | 0.43 | 0.51 |
| Adj R-squared | 0.39 | 0.44 |

Note: standard errors are in parentheses. The sample is made up of 99 countries; its panel structure provides for approximately twice that number of data points (slightly fewer, actually, due to missing observations).

Source: see text.

Table 2
Growth and Income Levels, Actual and Projected

| | Initial conditions | | No institutional reform | | Institutional convergence | |
|---|---|---|---|---|---|---|
| | Growth rate | Per capita GDP | Growth rate | Per capita GDP | Growth rate | Per Capita GDP |
| | 1991-1998 | 1998 | 1999-2006 | 2006 | 1999-2006 | 2006 |
| | | | | | | |
| Czech Republic | -0.18 | 5142.06 | 0.03 | 5154.92 | 2.73 | 6378.74 |
| Estonia | -1.11 | 3950.61 | -0.44 | 3812.77 | 2.58 | 4845.02 |
| Hungary | 0.3 | 4920.36 | 1.91 | 5725.18 | 3.73 | 6594.99 |
| Poland | 3.77 | 3876.56 | 0.28 | 3965.49 | 2.93 | 4881.52 |
| Slovenia | 1.34 | 10637.28 | 1.62 | 12099.45 | 3.53 | 14042.69 |
| Latvia | -4.58 | 2327.66 | -2.81 | 1853.05 | 1.89 | 2702.94 |
| Lithuania | -4 | 2196.84 | -1.74 | 1908.66 | 2.96 | 2774.41 |
| Romania | -2.05 | 1310.14 | -3.4 | 993.32 | 2.89 | 1645.74 |
| Slovak Republic | 0.28 | 3822.17 | -2.27 | 3182.04 | 2.32 | 4593.42 |
| Turkey | 2.65 | 3167.2 | -4.7 | 2154.99 | 2.76 | 3939.5 |
| | | | | | | |
| Austria | 1.57 | 30868.76 | 1.92 | 35952.46 | | |
| Belgium | 1.42 | 28790.44 | 1.6 | 32691.82 | | |
| Finland | 1.09 | 28074.71 | 3.42 | 36755.26 | | |
| France | 1.11 | 27974.57 | 1.9 | 32518.01 | | |
| Germany | 1.24 | 31140.75 | 2.3 | 37356.6 | | |
| Ireland | 6.78 | 23421.92 | 3.73 | 31394 | | |
| Italy | 0.96 | 19574.33 | 2 | 22936.18 | | |
| Luxembourg | 3.53 | 46590.92 | 1.12 | 50950.94 | | |
| Portugal | 2.36 | 11671.65 | 1.99 | 13661.74 | | |
| Denmark | 2.34 | 37449.27 | 2.24 | 44724.5 | | |
| Greece | 1.49 | 12069.43 | 2.18 | 14347.55 | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sweden | 0.63 | 27704.54 | | -1.82 | 23912.7 | | | |
| UK | 1.47 | 20236.63 | | 3.55 | 26759.97 | | | |

Source: see text.

**Table 3**

**Measures of EMU Heterogeneity, Different Groupings**

| | No institutional reform | | | Institutional convergence | |
|---|---|---|---|---|---|
| | Growth rate | Per Capita Inc. | | Growth rate | Per Cap. Inc. |
| EMU 1999 | 1.89 | 9494.93 | | | |
| EMU 2006.1 | 0.84 | 10255.06 | | | |
| EMU 2006.2 | 1.39 | 10804.56 | | | |
| EMU 2006.3 | 1.41 | 14734.16 | | 1.29 | 14332.62 |
| EMU 2006.4 | 2.1 | 15888.26 | | 1.18 | 15456.84 |
| EMU 2006.5 | 2.36 | 15968.59 | | 1.16 | 15494.24 |

Source: see text.

**Table 4. Status of Enlargement Negotiations**

| **Chapter:** | **EE** | **PL** | **SI** | **CZ** | **HU** | **BG** | **LV** | **LT** | **RO** | **SK** |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. Free movement of goods | X | X | X | O | X | | | | | |
| 2. Freedom of movement for persons | X | X | X | X | X | | | | | |
| 3. Freedom to provide services | X | X | X | X | X | | | | | |
| 4. Free movement of capital | O | X | X | X | X | | | | | |
| 5. Company law | O | X | O | X | X | | | | | |
| 6.Competition policy | X | X | X | X | X | | X | X | | X |
| 7. Agriculture | X | X | X | X | X | | | | | |
| 8. Fisheries | O | X | O | O | O | | | | | |
| 9. Transport policy | X | X | X | X | X | | | | | |
| 10. Taxation | X | X | X | X | X | | | | | |
| 11. Economic and monetary union | O | O | O | O | O | | | | | |
| 12. Statistics | O | O | O | O | O | | O | O | | O |
| 13. Social policy and employment | X | X | X | X | X | | | | | |
| 14. Energy | X | X | X | X | X | | | | | |
| 15. Industrial policy | O | O | O | O | O | | | | | |
| 16. Small and medium-sized undertakings | O | O | O | O | O | O | O | O | O | O |
| 17. Science and research | O | O | O | O | O | O | O | O | O | O |
| 18. Education and training | O | O | O | O | O | O | O | O | O | O |
| 19. Telecomm. & information technologies | O | O | O | O | O | | | | | |
| 20. Culture and audiovisual policy | X | X | X | X | X | X | X | X | | X |
| 21. Regional policy | X | X | X | X | X | | | | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 22. Environment | X | X | X | X | X | | | | | |
| 23. Consumers and health protection | O | O | O | O | O | | | | | |
| 24. Co-operation in the fields of justice and | X | X | X | X | X | | | | | |
| 25. Custons union | X | X | X | O | X | | | | | |
| 26. External relations | O | O | X | O | X | X | X | X | O | O |
| 27. Common foreign and security policy | O | O | O | O | O | O | O | O | O | O |
| 28. Financial control | X | O | O | X | O | | | | | |
| 29. Financial and budgetary provisions | X | X | X | X | X | | | | | |
| 30. Institutions | | | | | | | | | | |
| 31. Other | | | | | | | | | | |

O= chapter provisionally closed; X= negotiations in progress

Source: Deutsche Bank EU Enlargement Monetary: Central and Eastern Europe no. 1 (September 2000), p.6.

**Table 5. EMU Convergence Criteria**
**Central and Eastern European Accession Candicates in Comparison**

| | Rate of inflation in % | | | Interest rates[73] | Budget deficit[74] | | | Government debt[2] | | | Exchange rate regime |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1999 | 2000 | 2001 | Nov. 2000 | 1999 | 2000 | 2001 | 1999 | 2000 | 2001 | Nov. 2000 |
| **Reference value** | **2.0** | **2.8** | **3.2** | **7.4** | **-3.0** | **-3.0** | **-3.0** | **60.0** | **60.0** | **60.0** | **ERM II** |
| **BU** | 0.3 | 8.9 | 6.6 | 5.0 | -1.0 | -1.5 | -1.5 | 93.6 | 95.5 | 97.5 | Currency board (EUR) |
| **CZ** | 2.1 | 4.1 | 5.1 | 7.6 | -4.2 | -5.2 | -6.1 | 29.0 | 29.0 | 28.5 | Managed floating (EUR) |
| **EE** | 3.3 | 3.9 | 4.8 | 7.1 | -4.7 | -1.1 | -0.9 | 11.0 | 11.4 | 12.6 | Currency board (EUR) |
| **HU** | 10.0 | 9.8 | 6..6 | 9.3 | -3.8 | -3.0 | -3.0 | 72.7 | 70.5 | 63.3 | Fluctuation band (EUR) |
| **LT** | 0.8 | 1.5 | 3.2 | 8.2 | -8.6 | -2.9 | -2.5 | 28.6 | 26.3 | 26.6 | Currency board (USD) |
| **LV** | 2.4 | 3.4 | 4.1 | 10.4 | -3.8 | -1.9 | -1.6 | 10.6 | 10.6 | 10.4 | Peg (SZR) |
| **PL** | 7.0 | 10.0 | 7.4 | 13.1 | -3.7 | -2.4 | -2.5 | 43.0 | 43.7 | 42.5 | Flexible |
| **RO** | 44.8 | 44.2 | 22.9 | 43.4 | -4.0 | -3.5 | -3.0 | 32.3 | 31.3 | 30.4 | Managed floating (EUR) |
| **SI** | 6.1 | 9.0 | 7.6 | n.a. | -0.7 | -1.0 | -1.0 | 24.3 | 25.0 | 25.5 | Managed floating (EUR) |
| **SK** | 10.6 | 12.1 | 6.7 | 7.7 | -3.9 | -5.5 | -5.6 | 25.3 | 27.0 | 26.7 | Managed floating (EUR) |

Source: Deutsche Bank EMU Watch no. 88 (6 December 2000), p.3.

[73] 10-year government bonds, where available, in % p.a. Shorter maturities for BU, EE, LT, LV, RO, SK.

[74] In % of GDP. Definitions may differ from those of the EU.

**Table 6. Exchange Rate Regimes in Candidate Countries**

| *Country* | *Currency* | *Regime* | *Peg/Basket* | *Rate of Crawl* | *Band* | *Monetary policy framework* |
|---|---|---|---|---|---|---|
| ***Bulgaria*** | lev | fixed peg | euro | - | - | Currency board |
| ***Cyprus*** | Cyprus pound | fixed peg | euro | | +/- 2.25% | Additional monetary aggregates targeting |
| ***Czech Republic*** | koruna | managed float | euro target zone | - | - | Inflation targeting |
| ***Estonia*** | kroon | fixed peg | euro | - | - | Currency board |
| ***Hungary*** | forint | crawling peg | euro | 0.4% dep. per month | +/- 2.25% | Implicit inflation targeting |
| ***Malta*** | lira | fixed peg | 56% euro, 22% USD, 22% GBP | - | - | |
| ***Latvia*** | lats | fixed peg | SDR | - | Intervention at +/- 1% | Quasi-Currency board Additional monetary aggregates targeting |
| ***Lithuania*** | litas | fixed peg | USD | - | - | Currency Board |
| ***Poland*** | zloty | full float | - | - | - | Inflation targeting |
| ***Romania*** | leu | managed float | - | - | - | Monetary aggregates targeting |

| | | | | | | |
|---|---|---|---|---|---|---|
| ***Slovakia*** | koruna | managed float | - | - | - | Monetary aggregates targeting |
| ***Slovenia*** | tolar | managed float | euro shadowing | - | - | Monetary aggregates |