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The ECB and Euro-Area Enlargement

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Abstract

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The likely enlargement of euro-area membership will radically change the environment under which monetary policy will be made in the euro area. Within less than a decade, the number of member countries in the euro area could more than double, with the vast majority of accession countries being relatively small in economic terms, compared with current members. Absent reforms, such a significant but asymmetric expansion could impede the effectiveness of the institutional policymaking process of the European Central Bank (ECB) and be seen by some as resulting in the overrepresentation of small member countries in the ECB Council. The paper illustrates these issues, describes the principles on which reforms of the ECB statute could build, and discusses four specific institutional reform scenarios. The analysis coincides with the ECB Council being scheduled to present suggestions for reform by late 2002.

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I. INTRODUCTION

The adaptation of the European Central Bank (ECB) to a likely increase in euro area membership is one of the more urgent political tasks currently facing the European Union (EU). As of today, ten Central and Eastern European countries² are expected to adopt the euro after accession to the European Union (EU) and with it the Economic and Monetary Union (EMU)³, two Southern European countries are also expected to apply (Malta and Cyprus), and three EU members, which currently are not members of the euro area, could adopt the euro on short notice (United Kingdom, Sweden, and Denmark). Most observers agree that membership in the euro area might—at a minimum—increase from the current 12 to 24 by the end of the decade. In the absence of modification of the current ECB statute, such growth could have severe consequences for the efficiency of monetary policymaking in the euro area. The task of ECB reform, while not capturing many headlines in the media, is already on the political agenda. The Nice summit of December 2000 asked the ECB Governing Council⁴ to prepare suggestions for a reform of its statute by the end of 2002, and there have been reports of heated discussions among the Council members regarding the possible reform paths.

What lies at the heart of the problem of euro area enlargement in the context of ECB reform? The paper stresses two problems that could impede policymaking within an enlarged but unreformed EMU.

First, a larger ECB Council could experience greater *difficulties in decision making* than the smaller body governing monetary policy in the euro area today. Without reform of the current ECB statute, the doubling of the number of euro area member states would increase the size of the ECB Council from 18 (6 members of the Executive Board⁵ plus 12 national central bank governors) to 30, making it by far the largest monetary policymaking body among industrial countries. Discussion and voting procedures would likely become more time-consuming and complicated. The central bank tradition of consensus-based policymaking—said to play an important role in today’s ECB decision-making process, too—could further amplify the “large number problem” and increase decision-making costs.

² The countries are (in alphabetical order) Bulgaria, the Czech Republic, Cyprus, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, the Slovak Republic, and Slovenia.

³ Since EMU membership is part of the *acquis communautaire* of the EU, accession countries will join EMU and the European System of Central Banks (ESCB) as soon as they join the EU. EMU and ESCB membership do not, however, necessarily imply euro area membership, as countries wanting to adopt the euro must fulfill the Maastricht criteria and certain other requirements. In legal terms, when joining the EU, accession countries become euro area members “with a derogation” (EU 1997, Article 122).

⁴ Hereinafter referred to as “ECB Council” or simply “Council.”

⁵ Hereinafter referred to as “ECB Board” or “Board.”

Second, an increase in euro area member states without reform is likely to increase the overall *wedge between the economic and political weights* of EMU member countries within the ECB. Currently, all member states have equal voting power within the Council, and policy decisions are based on a simple majority-voting rule. Since almost all accession countries are small in economic terms relative to current euro area members, enlargement within the existing institutional setup would significantly increase this mismatch between the smaller member countries' vote share and relative economic size. Such "overrepresentation", while not necessarily a problem per se, could, nevertheless, introduce an unwelcome bias into the ECB's decision making: this would be the case, at least in theory, if country representatives put some weight on national economic developments and these developments deviated significantly from the behavior of euro-area aggregates. Since the bulk of the accession countries are transition economies, which may be subject to idiosyncratic shocks and somewhat higher structural inflation than the core of the euro area, preconditions are there for such asymmetries to potentially have an impact on ECB policymaking.

Based on a detailed discussion of these overrepresentation and decision-making issues, the paper illustrates possible reforms of the ECB statute. A simple analytical model shows that, in principle, any such reform would benefit from keeping the number of decision makers on the ECB's Monetary Council within reasonable limits and then strengthening the voting power of the Board and/or more closely aligning the economic and political weights of euro area member countries in the Council with one another.

Along these lines, a number of specific reform scenarios can be envisaged:

- *Centralization:* Decisionmaking could be centralized, for instance, in the hands of the six members of the present ECB Board.
- *Weighted voting:* Another possibility could be the introduction of weighted voting for non-Board members of the ECB Council, for instance, by GDP or population shares.
- *Representation:* Alternatively, voting rights might be allocated jointly to groups of national central bank governors, with group representatives voting in the ECB Council.
- *Rotation:* A last reform scenario could be asymmetric rotation. In this setup, national central bank governors would take turns sitting on the Council. For instance, a rotation scheme could allocate larger countries such as France or Germany a more or less permanent seat at the ECB Council, while very small countries such as Luxembourg or Estonia would join the Council less frequently. Moreover, grouping countries by economic size to "share" a Council seat would guarantee that the euro area members voting in the Council represent a majority of the euro area's economy.

While all reform scenarios aim to address the fundamental issues of growing euro area membership, there are considerable differences in the way these schemes deal with the potential problems arising from overrepresentation and the possible increase in decision-making costs.

The paper is organized as follows: Section II provides an analysis of the potential problems presented by euro area enlargement; Section III develops guidelines for a reform of the current ECB decision-making process; and Section IV illustrates principal avenues these reforms could take and discusses their respective advantages and disadvantages. Finally, Section V concludes by briefly summarizing the relative merits of the different reform scenarios.

II. PROBLEMS OF EURO-AREA ENLARGEMENT

A key characteristic of the enlargement of the euro area is the comparatively large anticipated increase in the number of member countries relative to the associated increase in economic size. This inherent “asymmetry” is illustrated in Figure 1, which compares the implied change in the number of member countries with the increase in aggregate population and GDP along a hypothetical enlargement sequence. In the EA24 case (defined in Figure 1), which envisages accession of all current applicants, but excludes Denmark, Sweden, and the United Kingdom, euro area membership will double compared with the status quo, but the euro area’s aggregated GDP will increase by little more than 5 percent and its population by just about 35 percent. This mirrors the fact that the great majority of the accession countries are significantly smaller in economic terms than the area’s present members (see Table 1 below).⁶

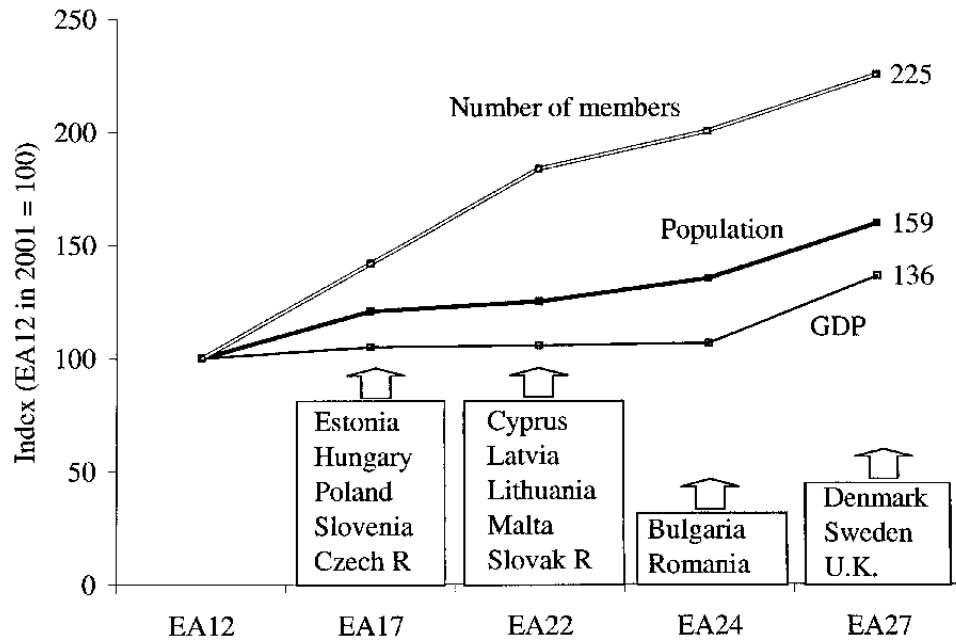
Accession countries are not only small, they are also relatively poor: average GDP per capita amounts to less than half of average GDP per capita in the euro area even when measured at PPP exchange rates. Part of this income gap reflects differences in economic development, for instance, the relatively large size of the agricultural sector in terms of employment. As Table 1 reveals, the share of agricultural employment in the accession countries is about four times larger than in the current euro area. Regarding public finances, while the average candidate countries’ current debt ratio and old age dependency ratio (a crude proxy for pending ageing-related fiscal pressures) compare favorably with today’s euro area, many still face significant challenges regarding bringing their fiscal policies in line with EU and euro area requirements—not least because of specific expenditure needs associated with their relative poverty (e.g., infrastructure or health spending).⁷

What are the potential problems this fundamental asymmetry in the enlargement process will cause for ECB policymaking?

⁶ As Table 1 shows, the accession countries’ average population is just about 1/3 of the current euro area average and their average GDP amounts to less than 7 percent of today’s euro area average GDP. Divergence between the euro area’s growth in members and economic size would be mitigated to some degree if the remaining Western European non-members opted to join the currency union.

⁷ See Feldman, Watson and others (2002) for a more in-depth analysis of fiscal issues involved on the road to EU accession.

Figure 1. Asymmetric Growth of the Euro Area



Sources: Eurostat; IFS; own calculations.

Notes: The assumed enlargement sequence is for illustrative purposes only. EA17 adds to the current 12 euro area (“EA”) members that have adopted the euro, those five countries that are boxed; similarly for EA22, EA24, and EA27. Most observers would probably agree that Bulgaria and Romania might not be part of the first wave of enlargement. Denmark, Sweden and the United Kingdom are separated to reflect their special “opt out” status. Population and GDP (converted at current market exchange rates) data is as of 2001.

Table 1. Selected Country Characteristics

	Population (In million)	GDP (In billion €)	GDP per Capita (€, PPP) 1/	Share of Agricultural Employment (In percent) 2/	Government Debt / GDP (In percent) 2/	Old Age Dependency Ratio
<i>Accession countries</i>						
Poland	38.6	202.0	7,921	18.8	40.9	0.18
Romania	22.4	42.7	5,663	42.8	31.6	0.20
Czech Republic	10.2	62.7	12,203	5.1	17.3	0.20
Hungary	10.0	56.3	10,714	6.5	58.2	0.21
Bulgaria	8.5	14.3	4,753	26.6	80.6	0.25
Slovak Republic	5.4	23.0	9,928	6.7	32.8	0.17
Lithuania	3.7	13.5	6,239	20.2	28.3	0.20
Latvia	2.5	8.9	5,872	17.1	13.0	0.22
Slovenia	2.0	23.2	14,977	9.9	25.8	0.21
Estonia	1.4	5.9	7,832	8.3	5.3	0.22
Cyprus	0.6	10.2	17,816	9.6	60.6	0.16
Malta	0.4	4.3	14,238	1.7	60.7	0.19
<i>EU members not yet in euro area</i>						
Denmark	5.4	184.2	24,249	3.6	46.8	0.22
Sweden	8.9	233.5	21,218	2.9	55.3	0.27
United Kingdom	59.6	1,591.1	20,709	1.5	42.4	0.24
<i>Summary: accession countries</i>						
Minimum	0.4	4.3	4,753	1.7	5.3	0.16
Average 3/	8.8	38.9	9,690	16.4	38.3	0.19
Maximum	38.6	202.0	17,816	42.8	80.6	0.25
<i>Summary: accession countries w/o Bulgaria, Romania</i>						
Minimum	0.4	4.3	4,753	1.7	5.3	0.16
Average 3/	7.5	41.0	9,690	13.3	37.5	0.19
Maximum	38.6	202.0	17,816	20.2	60.7	0.22
<i>Summary: euro area (status quo)</i>						
Minimum	0.4	22.0	14,448	1.9	5.6	0.17
Average 3/	25.0	573.3	21,242	4.5	70.3	0.25
Maximum	82.0	2,086.9	40,090	17.0	110.6	0.27
<i>Average. accession countries in percent avg. euro area</i>						
Percent 4/	35.3	6.8	45.6	362.7	54.5	78.0

Sources: WEO; IFS; World Economic Indicators; Eurostat, EU Commission; own calculations.

Notes: All data for 2001 unless otherwise indicated. Old age dependency ratio is defined as the ratio of the population aged 65 and older to the population aged 15–64.

1/ 1999; PPP denotes purchasing power parity.

2/ 2000.

3/ Weighted where applicable.

4/ Based on raw data, might deviate from rounded numbers in table.

A. Decision-Making Costs

One channel through which the growth of the euro area can influence the effectiveness of the ECB's current decision-making process is the implied increase in the number of decision makers involved. While Baldwin (2001) surely overplays the ECB's "number problem" when he suggests that—in the absence of reform—euro area enlargement will leave the ECB with "too many [members] to decide on where to go to dinner, let alone agree on how to run monetary policy for more than 400m people," the sheer magnitude of the implied growth of the ECB Council is astounding. Table 2 reveals that the number of Council members could increase from currently 18 members to 33 in the EA27 scenario. It is easy to imagine that a change of this magnitude could complicate decisionmaking. Table 2 (fourth column) shows that already today the ECB Council, with its 6 Board members and 12 national central bank governors, is relatively large compared to the decision-making bodies of other federal central bank systems—such as the Bundesbank's Zentralbankrat (ZBR) and the Fed's Federal Open Market Committee (FOMC)—and that of many centralistic central bank models. After enlargement, the number of voting members in the ECB Council could be almost twofold the number of ZBR members and almost threefold the number of FOMC members.

The fact that both the Bundesbank and the Fed constrain the size of their decision-making bodies hints at possible difficulties associated with a growing ECB Council. In fact, as Eichengreen (1992) shows, the present organizational framework of the Fed, which only allows 5 out of 12 regional central banks a vote in the FOMC, is the result of an evolutionary process that was driven, in part, by the inefficiencies caused by the involvement of too many decision makers. In the case of the German Bundesbank, the reform of 1992 was designed to ensure that the increase in the number of Länder after unification would not translate into a larger overall Council. Before 1992, each of the German Länder operated a regional central bank and its president held a vote in the ZBR. Without the reform, Council membership could have increased to 23 or more, which, according to the Bundesbank, "would have greatly complicated that body's decision-making processes" (Deutsche Bundesbank 1992, p. 50).

A larger number of national central bankers on the Council might impede the ECB's ability to react to macroeconomic shocks in a timely fashion. An ECB Council with more than 30 members is likely to need significantly more time than today's smaller Council to exchange and coordinate views on present and future developments of the economy, to evaluate policy options, and to prepare policy actions for voting. For instance, the ECB's practice⁸ to start a meeting with a "tour d'horizon," a short statement by each national central bank governor after the Board's presentation of the euro area economic outlook, would be a considerable effort in

⁸ Since the ECB does not publish meeting minutes, accounts on actual Council practices are limited to anecdotal evidence. See, among others, Baldwin and others (2001), Barber (2001), Fairlamb (2001), and Haring and Barber (2001).

the EA27 case.⁹ While a larger Council would probably make more extensive use of explicit voting procedures to reduce decision and coordination costs, the culture of consensus-based decision-making prevailing within the ECB Council might limit the use of such procedures in practice.

Table 2. Distribution of Voting Power in Selected Central Banks

	Board	Regional Central Bank Governors	Overall Council Members	Political Weight of Governors 1/
<i>Federal central bank models</i>				
Bundesbank pre-1957	1	9	10	90.0
Bundesbank pre-1992	7	11	18	61.1
Bundesbank 2/	8	9	17	52.9
Federal Reserve pre-1913	0	12	12	100.0
Fed 3/	7	5	12	41.7
ECB 1999	6	11	17	64.7
ECB 2001	6	12	18	66.7
ECB (EA27) 4/	6	27	33	81.8
<i>Centralistic central bank models 5/</i>				
Australia	9	n/a	9	n/a
Canada	7	n/a	7	n/a
New Zealand	1	n/a	1	n/a
Sweden	6	n/a	6	n/a
United Kingdom	9	n/a	9	n/a

Sources: Central banks; own calculations.

- 1/ Number of national central bank governors in percent of overall council members.
- 2/ Since the 1992 Bundesbank reform, 9 regional central banks cover all 17 Länder. A further reform of the Bundesbank status is under discussion.
- 3/ At any given time, only 5 out of the 12 regional central banks hold FOMC voting rights. The NY Fed is allocated a permanent seat in the FOMC, while the remaining 4 seats rotate among the remaining 11 regional central banks.
- 4/ Assumes, for illustrative purposes, that all accession countries, Denmark, Sweden, and the United Kingdom join the euro area without a reform of the current decision-making framework.
- 5/ Note that n/a (not applicable) in columns three and five indicate that there is no regional representation in these central banks.

⁹ For instance, 5-min statements by 28 Council members easily add up to more than 2 hours meeting time. The time needed to “sound each other out” bilaterally before Council meetings, sometimes said to be another practice before ECB Council meetings today (Haring and Barber 2001), grows exponentially in the number of members.

B. Economic and Political Weights

In addition to putting the size of an unreformed ECB Council into perspective, Table 2 (rightmost column) reveals that the political weight attached to regional (or, in the case of the ECB, national) central bank representatives within the ECB decision-making process is large compared with other industrial country central banks. In many OECD countries, monetary policy is delegated to central banks that lack any regional base, i.e., where—using the ECB terminology—all members of the Council are centrally-appointed Board members.

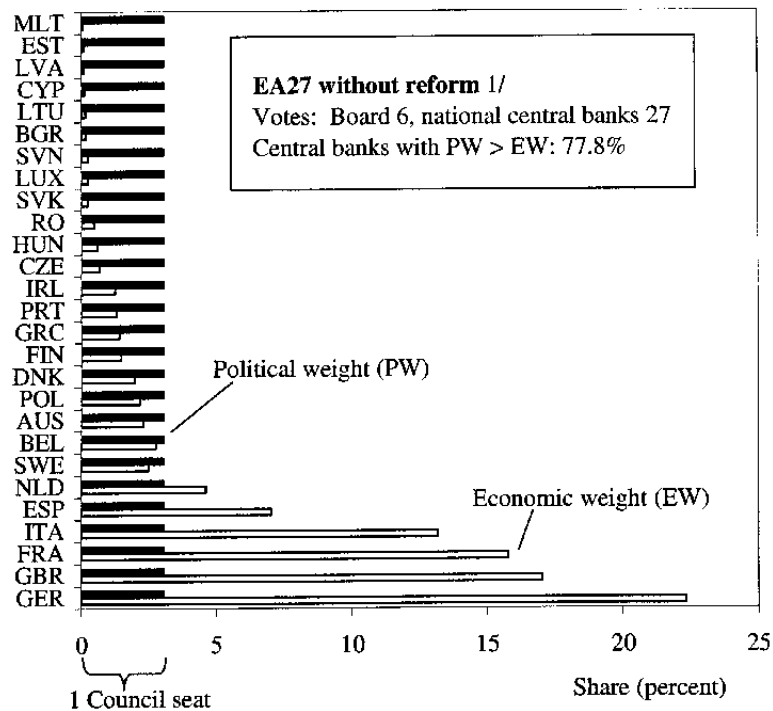
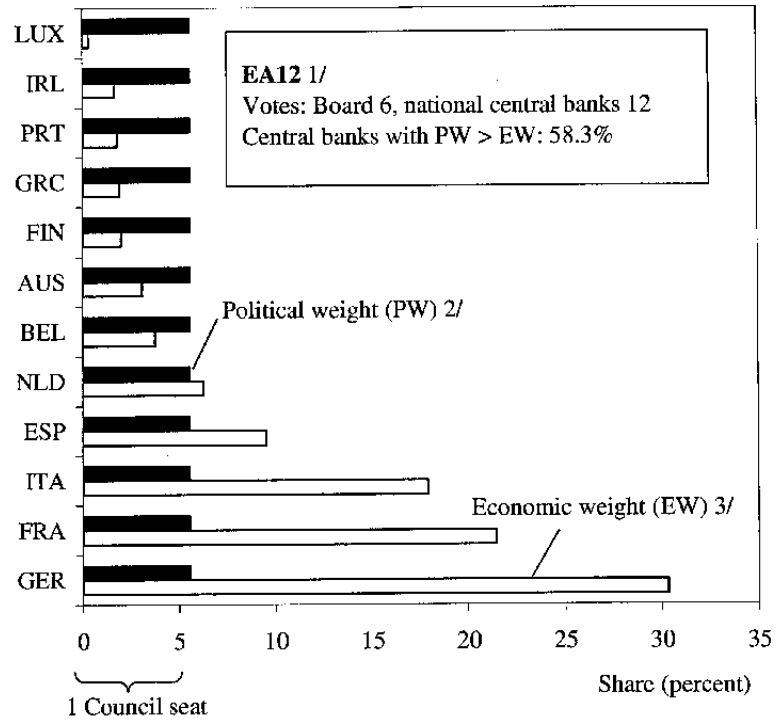
It is also interesting to note that, over time, both the German Bundesbank and the U.S. Fed have systematically reduced the political weight of regional representatives in the Council (Eichengreen 1992, Berger and de Haan 1997). Early on, both central bank systems resembled more or less unions of national central banks; over time, however, the central element in both decision-making bodies was strengthened, reducing the vote share of regional representatives to about 53 percent of all votes in the case of the ZBR and about 42 percent in case of the FOMC. The political weight of the Board in today's ECB Council is much smaller: currently, national central bank governors occupy about 67 percent of all Council seats; and euro area enlargement could increase that percentage to as much as 82 percent.

A consequence of the strong representation of national central banks and the fact that the present ECB decision-making framework grants similar voting rights to all Council members—the “one person, one vote” principle (ECB 1999, p. 59)—is that small member countries carry a larger political than economic weight (Berger and de Haan 2002). The upper panel of Figure 2 shows the economic and political weights that individual member countries carry in today's ECB. While a country like France, which produces roughly 1/5 of the euro area's GDP but has 1/18 of the overall votes, is clearly underrepresented in the Council in this sense, the political weight allocated by the present ECB framework to smaller countries such as Ireland clearly exceeds their economic weight. In fact, the box in Figure 2 indicates that about 58 percent of all current euro area members share Ireland's feat.

Enlargement will greatly increase such “overrepresentation” of smaller countries and is likely to accentuate the overall mismatch between the economic and the political weights of euro area members. As the lower panel of Figure 2 shows, the percentage of member countries whose political weight exceeds their economic weight would increase to about 78 percent, if the euro area grew to 27 members without a reform of the ECB statute. Due to the strict “one person, one vote” principle, all newcomers but the United Kingdom would be allocated a political weight surpassing their economic weight—in most cases by a substantive margin.¹⁰ An illuminating fact is that the governors of the 17 smallest member countries, which could, in theory, determine monetary policy decisions by majority vote in the EA27 case, would represent less than 11 percent of the euro area's total GDP. The equivalent figure in today's EA12 is about 48 percent.

¹⁰ Interestingly, enlargement could, at the same time, reduce the “underrepresentation” of the current larger euro area member countries. The reason is that both their relative economic size and their vote share decline as more countries join the euro area; and the former could fall more rapidly. Section III (with Appendix 1) returns to this issue.

Figure 2. Economic and Political Weights of Central Banks Before and After Enlargement



Sources: Eurostat; IFS; World Economic Outlook; own calculations.

1/ EA12 and EA27 are defined in Figure 1.

2/ The share of a country in the euro area's GDP.

3/ The vote share of a country's central bank governor in the ECB Council.

The overrepresentation of smaller member states, even though not necessarily a problem as such, could introduce a bias into the ECB's decisionmaking. This is likely to be the case, if, in theory, national central bank governors put at least *some* weight on national economic developments and these developments deviated significantly from the behavior of euro area aggregates.¹¹ For instance, a decrease in euro area economic activity is probably more deeply felt in a euro area member country that suffers from relatively low per-capita income, low growth, or high unemployment than in more affluent regions; and countries with already high levels of inflation might be more sensitive to a euro area wide increase in inflation than low-inflation regions.

While the ECB (1999, p. 55) stresses that “members of the [Council] do not act as national representatives, but in a fully independent personal capacity,” it is certainly not unreasonable, for the sake of analysis, to assume that national economic welfare plays at least some role in the voting behavior of national representatives in the ECB Council and to derive the implications of that assumption. In fact, the notion of regional influences in a federal central bank system is supported by recent studies on U.S. and German monetary policy. Berger and de Haan (2002) present evidence that regional differences in growth and inflation had a significant influence on the voting behavior of ZBR members. Similarly, Meade and Sheets (2002) find that Fed policy makers do take into account developments in regional unemployment when deciding monetary policy in the FOMC.¹² While no direct evidence of such behavior in today's ECB exists, Meade and Sheets (2002) go on to argue that—based on a simple majority voting rule—recent interest rate decisions by the ECB Council at least do not allow rejection of the hypothesis that national central bank governors do vote with a regional bias in the euro area, too.

Von Hagen and Brückner (2001) argue that the effects of diverging regional interests on ECB decisionmaking might be mitigated by the procedural practice to let the chief economist, a Board member, set the agenda and make specific policy proposals. This could strengthen the position of the Board and support a euro area wide perspective in the Council if decisionmaking was based on consensus.¹³ However, as argued in the previous section, enlargement will make consensus-based policymaking difficult to implement and, as a consequence, more and more Council decisions might be based on majority voting. Baldwin and others (2001) show that, in such an environment, the Board's ability to form a winning coalition among Council members

¹¹ The notion is not entirely new. Even before the ECB started operating, the *Economist* (1998) remarked, “there is a risk that national governors will be unduly influenced by conditions in their home country.”

¹² They show that over the 1978–2000 period, an increase in a region's unemployment rate (for a given national rate) by one percentage point reduced the probability that a FOMC member dissented from the majority vote by about 2 percentage points (evaluated at sample means).

¹³ In particular, von Hagen and Brückner (2001) point to formal voting models showing that it will be harder for a deviating opinion to find sufficient support within a large ECB Council under a *consensus-based* decision-making rule.

will be seriously reduced as the number of euro area member countries increases and its relative power decreases.

C. Differences in Economic Behavior

Does the behavior of the economies of new euro area members differ significantly from today's euro area and how might these differences influence monetary policy?

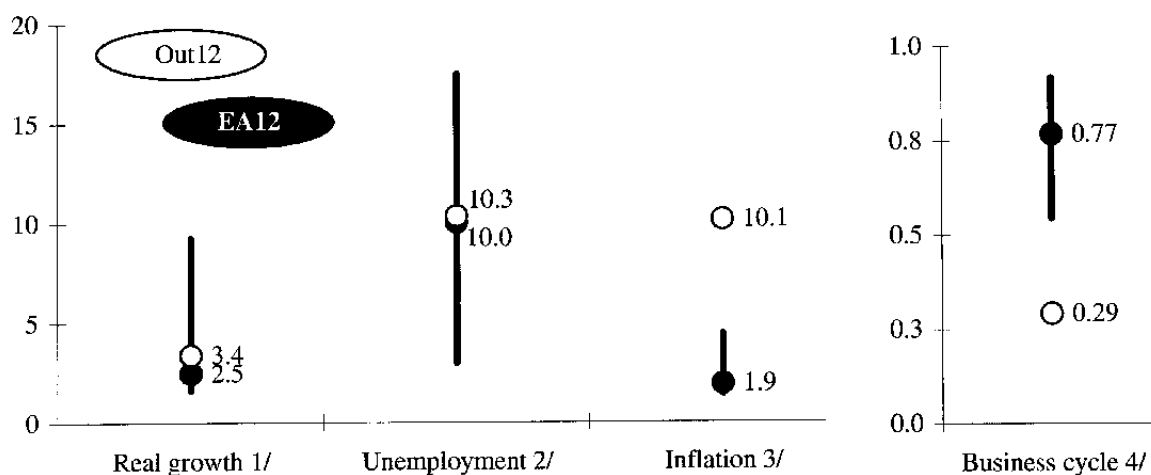
The fact that the majority of candidate countries are *transition economies* might have an influence on the central bank governors representing these countries in the ECB Council—in particular, on their perspective on real growth. Table 1 has already established that real per capita income in most accession countries is very low compared to current euro area levels, and the process of convergence is commonly thought to take some time. Fischer and others (1998a and b) estimate that it might take many Central and Eastern European economies until the 2020s or longer to catch up with even the countries at the lower end of the current euro area income scale.¹⁴ A plausible conjecture would be that diminishing income differences at a too measured pace could make real growth a somewhat more attractive policy target in the eyes of central bank governors representing these transition countries in the ECB Council.¹⁵

Real convergence will contribute to a considerable increase in the dispersion of growth rates within the euro area, with important consequences for *inflation*. Figure 3 shows that, in 1996–2001, the average growth rate of accession countries exceeded average growth in the euro area by about 1 percentage point. Recent empirical work suggests that this trend is likely to continue (Eichengreen and Ghironi 2001, Havrylyshyn 2001). One important consequence of higher-than-average growth in the accession countries in the years ahead is higher inflation than in the current euro area. Indeed, Figure 3 indicates that the average inflation differential between the euro area and accession countries was around 8 percentage points during 1996–2001 (even excluding Bulgaria and Romania, two high-inflation countries).

¹⁴ Of course, being an EU member might help to spur growth in the transition economies. Fuller integration in the EU economy and introducing the euro could lead to more intensive trade relations, broader based technology transfer, significantly lower real interest rates, and, ultimately, higher growth rates. In a recent panel study, Crespo-Cuaresma and others (2002) find the length of EU membership to have a significant positive effect on economic growth, which is relatively higher for poorer countries.

¹⁵ While a standard result in the literature on time inconsistency shows that, in a rational expectations equilibrium, a too ambitious real growth target has no real effects, it would nevertheless lead to a more expansionary monetary policy and higher-than-optimal inflation (Kydlund and Prescott 1977, Barro and Gordon 1983). See Section III for more discussion.

Figure 3. Selected Indicators for the Current Euro Area (EA12) and the Accession Countries (Out12) 1996–2001



Sources: Eurostat; IFS; World Economic Outlook; OECD; own calculations.

Notes: The bold lines — show the minimum and the maximum observation for current euro area countries; the black circle ● indicates the weighted average for the euro area; the white circle ○ the weighted average for the accession countries. EA12 excludes Luxembourg and Out12 excludes Denmark, Sweden, and the United Kingdom.

1/ Average real GDP growth 1996–2001.

2/ Average CPI inflation 1996–2001. Excluding Bulgaria and Romania. Including both countries the “Out12” figure reads 20.9.

3/ Average unemployment rate 1996–2001.

4/ The business cycle figure reports the correlation of percentage cyclical deviations of real per capita GDP in PPP-\$ from a HP-trend (with the smoothing parameter set to 100) between the euro area core (Germany, Italy, and France), the remaining EA12 countries, and the Out12 countries in the 1990–2001 period. To cope with the end-point problem of the HP-filter, the underlying series have been extended by 4 years using a simple AR1-model before the filter was applied.

One reason to expect inflation in many accession countries to remain higher than in most euro area countries is the Balassa (1964) and Samuelson (1964) argument that links real convergence with exceptionally high productivity growth in the traded sector in accession countries. If productivity improvements in the non-traded sector lag behind, non-tradables inflation can exceed tradables inflation, leading to real appreciation, either through changes in the nominal exchange rate or—under fixed exchange rates—high overall inflation relative to the current euro area. While this argument does not constitute a theoretical necessity, a number of empirical studies have found the Balassa-Samuelson effect to have increased inflation in candidate

countries relative to most euro area members. Results vary, but most estimates conclude that it contributes about 1–3 percentage points to headline inflation.¹⁶

Moreover, to the extent that higher growth is driven by an upward shift in private demand, Phillips-curve type arguments could contribute to an increase in inflation in the accession countries.¹⁷ A sustained increase in demand might be caused by, among other things, higher export growth following the removal of obstacles to trade with the EU or catch-up consumption in domestic markets. Golinelli and Orsi (2001) show that demand factors have indeed contributed significantly to inflation in the Czech Republic, Hungary, and Poland during the 1990s. This might also be a relevant source of inflation in the candidate countries after they join the euro area.

Assessing how the—possibly very distinct—structural inflation performance will influence the behavior of central bank governors representing accession countries in the ECB Council is difficult. On the one hand, some might turn more “hawkish.” On the other, in light of the remaining stark differences in real income between current euro area member and the accession countries, many governors might be willing to accept higher inflation if it comes in the wake of real convergence. Given the strong representation of the accession countries within an unreformed ECB decision-making framework, however, both possibilities come at a cost: the first case might imply higher nominal interest rates in the euro area, implying an increase in real interest rates for today’s area members; the second case could imply a higher overall level of inflation. Section III will return to this issue.

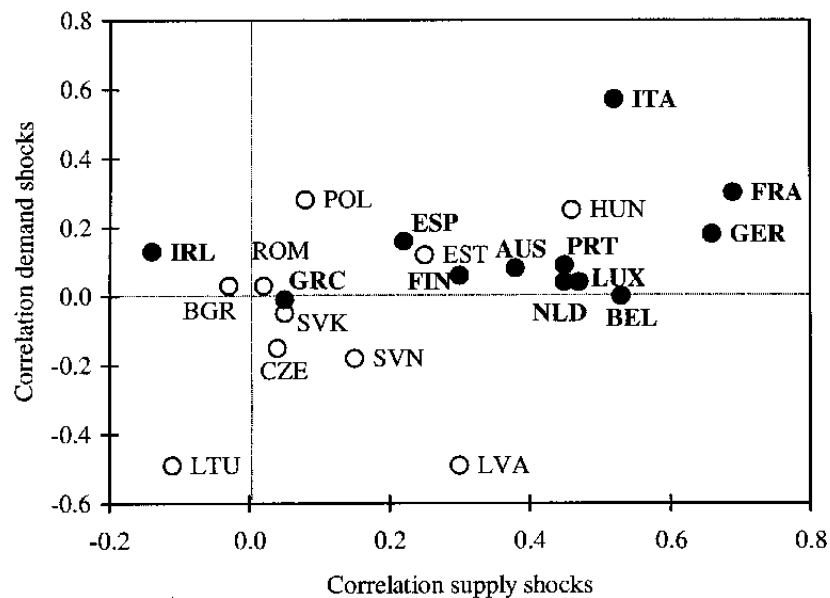
Yet another distinguishing feature of the candidate countries might be the *business cycle*. While the right panel in Figure 3 indicates that the link between deviations of real per capita GDP from trend in the accession countries and the euro area’s core—Germany, France, and Italy—was already surprisingly high in the 1990–2001 period, it remains low compared to current non-core euro area members: the average correlation coefficient between the core and candidate countries was 0.29, but it was 0.77 with other euro area members. Moreover, the “high-low” lines in Figure 3 indicate that the average accession countries’ business cycle was less synchronized with the core than the least synchronized among current non-core euro area members. There is, of course, some variance within the accession countries (see below). A number of recent empirical studies report qualitatively comparable results (see, e.g., Frenkel and others 1999, Boone and Maurel 1999, Brada and Kutan 2001).

¹⁶ See, for instance, Pelkmans and others (2000), Szapary (2000), Sinn and Reutter (2001), Golinelli and Orsi (2001), and Mihaljek (2002). Also, compare the discussion in Feldman, Watson, and others (2002). Most studies concede that Balassa-Samuelson effects, while being quantitatively important, cannot explain the entire difference in structural inflation between accession and euro area countries.

¹⁷ Galí and Gertler (1999), for instance, show how an increase in real activity can lead to upward pressure on inflation through higher marginal costs at the firm level.

Figure 4 sheds further light on the issue of diverging business cycles, disaggregating differences in GDP growth into *supply and demand shocks*. It displays the correlation of demand shocks (on the y-axis) and supply shocks (x-axis) in quarterly real GDP between individual euro area and accession countries, with demand and supply shocks in the euro area aggregate computed by Fidrmuc and Korhonen (2001). The results indicate that, even though there is considerable variance within groups, on average, demand and supply shocks tend to be more closely correlated in today's euro area. The majority of euro area countries are scattered in the upper-right part of the figure, while most candidate countries find themselves in the lower-left, indicating non-significant or even negative coefficients of correlation.¹⁸ Notable exceptions from the rule are two of the more advanced among the candidate countries, Estonia and Hungary, which rank among the euro area countries. Greece, which entered the euro area late and is thus early in its real convergence process, and Ireland, which was among the fastest growing countries in the EU in the sample period, seem as loosely connected to the euro area as the average accession country.

Figure 4. Correlations Between Demand and Supply Shocks in Selected Countries and the Euro Area 1/



Sources: Fidrmuc and Korhonen (2001), Table 2.

1/ Using quarterly real GDP (industrial production for Greece and Romania). The sample period is 1991–2000 for most euro area countries and 1992/95–2000 for accession countries. Shocks are identified using a two-variable VAR for output and prices and the Blanchard and Quah (1989) assumptions.

¹⁸ The weighted average of the demand and supply shock coefficients of correlation are 0.24 and 0.52 for the euro area countries and 0.13 and 0.11 for the accession countries. Malta and Cyprus are not included in the Fidrmuc and Korhonen (2001) sample.

The main messages stemming from Section II are that—in the absence of reform—the increase in the number of decisionmakers can reduce the efficiency of policymaking in the ECB Council, and that persistent differences in economic behavior between accession and current euro area countries could have an undue impact on monetary policy after enlargement. While real convergence will work to reduce economic idiosyncrasies in the long run, the majority of the accession countries are likely to be characterized by higher structural inflation than the current euro area in addition to being subject to different macroeconomic shocks—and thus a different business cycle—in the short- and medium-term.

III. ANALYTICAL CONSIDERATIONS FOR REFORM

In light of the results above, several key considerations could usefully guide reforms.

In the first place, with the ECB Council already relative large compared with many other central banks, to secure efficient decisionmaking, any reform should seek to avoid adding further seats to the table and *aim at reducing the number of decision makers in the Council*. Section IV will return to this issue, reviewing a number of possibilities to reform decisionmaking.

Second, reforms should *address the consequences of post expansion political overrepresentation* in the ECB Council in light of divergent business cycles and differences in structural inflation. The rest of this section takes a closer look at this issue using a simple analytical model. This analysis, in turn, helps to develop guidelines for reform.¹⁹

A. The Model

Consider the following illustrative setup for monetary policy making in the euro area after enlargement. Following a standard Barro and Gordon (1983) approach, output in the current euro area member countries (the “in” region) and today’s candidate countries (the “out” region) develops according to a Lucas supply function:

$$(1) \quad y_i = \pi_i - \pi_i^e + \varepsilon_i; \quad i = in, out,$$

where y measures output (with a natural level of zero), π headline inflation, π^e headline inflation expectations, and where ε is a regional output shock with zero mean and known variance. The model abstracts from symmetric output shocks hitting both the “in” and the “out” region. The natural level of output has been normalized to 0, allowing interpretation of y also as

¹⁹ Note that the model, while yielding key guidelines for reform, is not intended to be a complete description of all considerations relevant for the optimal institutional design of a currency union’s central bank. There might be, for instance, issues of political independence that should be taken into account when evaluating the pros and cons of greater centralization of decision making within the Council. Thus, some of these issues are also discussed alongside the analysis that follows from the model.

the output gap. Headline inflation is the sum of inflation in the tradables sector, $\tilde{\pi}$, assumed to be under direct and full control of the ECB, and a region-specific structural (exogenous) component, Δ_{π} :

$$(2) \quad \pi_i = \tilde{\pi} + \Delta_{\pi,i}; \quad i = in, out.$$

Thus, while the model abstracts from regional differences in the monetary transmission mechanism, it allows for differences in business cycles and structural inflation across the “in” and the “out” region.²⁰ More specifically, in light of the stylized facts discussed in the previous section, a plausible set of assumptions is

$$\varepsilon_{out} \neq \varepsilon_{in} \text{ and } \Delta_{\pi,out} > \Delta_{\pi,in} = 0,$$

i.e., output shocks differ across regions and structural inflation in the “out” region exceeds structural inflation in the “in” region—with the latter normalized to 0. The region-specific structural inflation components, $\Delta_{\pi,in}$ and $\Delta_{\pi,out}$, are common knowledge.

The simplest possible representation of decisionmaking within the ECB Council is a bargaining approach that abstracts from possible strategic interaction between Council members. Along this line, the ECB Council sets tradables inflation in the euro area by weighing the preferred policies of the Board and the national central bank governors:

$$(3) \quad \tilde{\pi}_{ECB} = b\tilde{\pi}_{Board} + (1-b)\tilde{\pi}_{NB},$$

with $b \in [0,1]$ measuring the political weight or, to be precise, the overall vote share of Board members in the Council and $\tilde{\pi}_{Board}$ and $\tilde{\pi}_{NB}$ representing the Board’s and the governors’ preferred tradables inflation rate, respectively. Since the vote shares of the “in” and “out” region might differ, the preferred policy of the national central bank governors is equivalently described as

$$(4) \quad \tilde{\pi}_{NB} = \gamma\tilde{\pi}_{in} + (1-\gamma)\tilde{\pi}_{out},$$

where $\gamma \in [0,1]$ measures the relative voting power of the “in” region. Thus the overall vote share or bargaining power, with which the interests of all parties involved enter into the ECB decision-making process, is

- for the Board: b ,
- for the “in” region: $(1-b)\gamma$,
- and for the “out” region: $(1-b)(1-\gamma)$.

What remains to be discussed is what monetary policy each decision maker would favor.

²⁰ See, for instance, Benigno (2000) and Hefeker and Gros (2002) for a discussion of differences in the transmission mechanisms in the context of monetary policy making within the euro area. Compare Ciccarelli and Rebucci (2002) for an empirical analysis of such differences for some current euro area members.

B. The “In” Region’s Preferred Policy

The “in” region’s ideal monetary policy is assumed to follow from a standard quadratic loss function that increases in the deviations of the region’s headline inflation and output from their respective targets.²¹ Assuming both targets are equal to 0, the loss function is

$$(5) \quad L_{in} = \pi_{in}^2 + \lambda y_{in}^2.$$

The relative weight of the real target is assumed to be positive, i.e., $\lambda > 0$. Substituting (1) and (2) into (5) and taking the derivative with regard to $\tilde{\pi}$ yields

$$(6) \quad \tilde{\pi}_{in} = \frac{\lambda}{1+\lambda} [\tilde{\pi}_{in}^e - \varepsilon_{in}],$$

as a reaction function.²² Equation (6) implies that the “in” region’s central bank representatives would like to partly accommodate inflation expectations and “lean against the wind” to compensate for national output shocks. Both arguments gain in importance as λ increases.

C. The “Out” Region’s Preferred Policy

Compared to the “in” region’s preferences, the “out” region’s is assumed to follow a more ambitious output target, $y_{out}^* > 0$, while the weight associated with output losses, λ , as well as its inflation target are assumed to be the same as in the “in” region:

$$(7) \quad L_{out} = \pi_{out}^2 + \lambda(y_{out} - y_{out}^*)^2.$$

The assumption that λ is the same across regions simplifies the analysis by reducing differences in preferences to the output target. In addition to a positive output target, the “out” region is characterized by the presence of structural inflation as described by equation (2) and the assumptions introduced earlier. Substituting for output and headline inflation in (7) and minimizing with regard to $\tilde{\pi}$ yields the reaction function²³

$$(8) \quad \tilde{\pi}_{out} = -\Delta_{\pi,out} + \frac{\lambda}{1+\lambda} [\tilde{\pi}_{out}^e + \Delta_{\pi,out} + y_{out}^* - \varepsilon_{out}].$$

There are two major differences between (8) and the “in” region’s reaction function (6). The inclusion of the positive term y^* in the second expression in (8) imparts a bias toward a *higher* rate of inflation, i.e., a more expansionary monetary policy than the “in” region. At the same

²¹ This is not to imply that national central bank governors will in fact completely abandon the spirit of the Maastricht treaty. The analytical results developed above only require that regional policy preferences put at least *some* weight on regional economic developments.

²² Note that (2) implies $\pi_{in}^e = \tilde{\pi}_{in}^e$ for the “in” region since $\Delta_{\pi,in}$ is normalized to zero.

²³ Equation (2) implies $\pi_{out}^e = \tilde{\pi}_{out}^e + \Delta_{\pi,out}$ for the “out” region.

time, however, equation (8) reflects the presence of structural inflation in the “out” region. To compensate for the presence of structural inflation, the “out” region aims for *lower* tradables inflation. While $\Delta_{\pi,out}$ enters with a negative sign in the first expression and with a positive sign in the second expression in (8), the overall effect is always negative as long as $\lambda > 0$. In general, the net effect of the “out” region’s more ambitious growth target and the presence of structural inflation on the “out” region’s preferred inflation rate is ambiguous. The discussion below will return to this issue.

D. The Board’s Preferred Policy

What is the Board’s preferred monetary policy? A reasonable assumption in line with the spirit of the Maastricht treaty is that the Board, appointed in a centralized process that involves all euro area members, would choose monetary policy to minimize a loss function based on economically weighted euro area averages of headline inflation and output

$$(9) \quad L_{Board} = [\chi\pi_{in} + (1-\chi)\pi_{out}]^2 + \lambda[\chi y_{in} + (1-\chi)y_{out}]^2,$$

where $\chi \in [0,1]$ is the economic weight (e.g., the share in aggregate euro area GDP of the “in” region). The Board attaches the same weight λ to the output target as the national central banks within the ECB. Similar to the “in” region (but different from the more growth-ambitious “out” region), the Board’s inflation and output targets are both set to 0. Once more substituting (1) and (2) into the loss function and taking the derivative with regard to $\tilde{\pi}$ yields a reaction function

$$(10) \quad \tilde{\pi}_{Board} = -(1-\chi)\Delta_{\pi,out} + \frac{\lambda}{1+\lambda}[\tilde{\pi}_{Board}^e + (1-\chi)\Delta_{\pi,out}] - \frac{\lambda}{1+\lambda}[\chi\varepsilon_{in} + (1-\chi)\varepsilon_{out}].$$

The second and third expressions in (10) imply that the Board prefers to set monetary policy to partly accommodate average expectations of headline inflation in the euro area as well as to partly compensate the economically weighted average of output shocks in the “in” and “out” region. The first term in (10) describes the Board’s reaction to structural inflation in the “out” region: the higher the region’s impact on euro area inflation, i.e., the higher $(1-\chi)$, the lower the Board will set tradables inflation so as to compensate for the impact of structural inflation in the “out” region on the overall euro area inflation rate. Since structural inflation is exogenous, expected headline inflation also increases in $(1-\chi)\Delta_{\pi,out}$, as evident in the second term in equation (10).

E. The ECB’s Policy

Having identified the preferred policies of both national central banks and the Board, the next step is to describe their interaction in determining monetary policy in the Council based on the bargaining framework discussed in Section III.A. Substituting equations (6), (8), and (10) into equations (3) and (4) yields the following reaction function for the ECB Council

$$\begin{aligned}
 \tilde{\pi}_{ECB} = & -[b(1-\chi) + (1-b)(1-\gamma)]\Delta_{\pi,out} + \frac{\lambda}{1+\lambda}(1-b)(1-\gamma)y_{out}^* \\
 (11) \quad & + \frac{\lambda}{1+\lambda}(\tilde{\pi}_{ECB}^e + [b(1-\chi) + (1-b)(1-\gamma)]\Delta_{\pi,out}) \\
 & - \frac{\lambda}{1+\lambda}([b\chi + (1-b)\gamma] \varepsilon_{in} + [b(1-\chi) + (1-b)(1-\gamma)] \varepsilon_{out}),
 \end{aligned}$$

where the fact has been used that tradables inflation will be the same across the whole currency union.²⁴ In a rational expectations equilibrium, inflation expectations are set to equal the expected rate of tradables inflation implied by the ECB's reaction function, i.e., $\tilde{\pi}_{ECB}^e = E \tilde{\pi}_{ECB}$, where E is the expectations operator. After computing expectations and rearranging, equilibrium tradables inflation can be written as

$$\begin{aligned}
 \tilde{\pi}_{ECB} = & -b(1-\chi)\Delta_{\pi,out} + (1-b)(1-\gamma)(\lambda y_{out}^* - \Delta_{\pi,out}) \\
 (12) \quad & - \frac{\lambda}{1+\lambda}([b\chi + (1-b)\gamma] \varepsilon_{in} + [b(1-\chi) + (1-b)(1-\gamma)] \varepsilon_{out}).
 \end{aligned}$$

Equation (12) mirrors the policy intentions of all parties involved. The first part on the right hand side reflects the Board's intention to compensate for the "out" region's structural inflation by lowering tradables inflation—weighted by b , the Board's vote share in the ECB Council.

The second element in (12) summarizes the conflicting policy objectives of the "out" region itself: on the one hand, the region's central bank representative, too, aims at decreasing tradables inflation to compensate for its higher structural inflation rate ($-\Delta_{\pi,out}$); on the other, the presence of a more ambitious growth target gives rise to an inflationary bias (λy_{out}^*). The net effect of these competing forces on equilibrium inflation depends on the ambitiousness of the "out" region's growth target, the importance of the output target in its loss function, and the size of its structural inflation. Against the background of the empirical evaluation in Section II, a plausible assumption is probably that

$$\lambda y_{out}^* > \Delta_{\pi,out},$$

which would imply a positive net effect on inflation in the euro area (through higher tradables inflation as determined by the ECB)—weighted by $(1-b)(1-\gamma)$, the "out" region's vote share in the ECB Council.

Finally, the third element on the right hand side of equation (12) reflects the stabilization policy of the Council in that the ECB will shift tradables inflation in the euro area to counter regional output shocks. The weight allocated to either region's output shock is the sum of the weights attached to output stabilization in the relevant region by the respective central bank (i.e.,

²⁴ That is, $\tilde{\pi}_{ECB}^e = \tilde{\pi}_{out}^e = \tilde{\pi}_{in}^e$.

$(1-b)(1-\gamma)$ for the “out” and $(1-b)\gamma$ for the “in” region) and the Board (i.e., $b\chi$ in case of the “in” and $b(1-\chi)$ in case of the “out” region).

F. Comparison with the Maastricht Benchmark

What is a proper benchmark for assessing monetary policy in the euro area as depicted in equation (12) with what would happen if all Council members were committed to follow the targets specified by the Maastricht treaty? A “first best” benchmark policy should capture the spirit of Maastricht within the simple framework described above.²⁵ A reasonable policy rule along this line is one that stabilizes economically-weighted euro area averages of output and inflation around zero, i.e., that—on average—keeps prices stable and output at its natural level.

More formally, define the “first best” monetary policy, $\tilde{\pi}^*$, as

$$(13) \quad \tilde{\pi}^* \equiv \arg \min L^* = [\chi\pi_{in} + (1-\chi)\pi_{out}]^2 + \lambda[\chi y_{in} + (1-\chi)y_{out}]^2 \text{ s.t. (1) and (2),}$$

i.e., as the rate of tradables inflation that minimizes the loss function L^* subject to equations (1) and (2).²⁶ If monetary policy were conducted in line with this rule, introducing rational expectations would yield equilibrium tradables inflation of

$$(14) \quad \tilde{\pi}^* = -(1-\chi)\Delta_{\pi,out} - \frac{\lambda}{1+\lambda}(\chi\varepsilon_{in} + (1-\chi)\varepsilon_{out}).$$

A comparison of equation (14) with equation (12) reveals a number of crucial differences. Noting that under the present ECB statute the Board’s voting power falls short of absolute, i.e., that $0 < b < 1$, one finds that

- actual *inflation* is likely to exceed the inflation rate achieved under a “first best” policy, if the inflationary bias introduced by the “out” region is high relative to the region’s structural inflation. As has been argued in Section II above, this might be a plausible assumption for most transition economies hoping to accelerate real convergence. Under these circumstances, inflation in the euro area will be increasing in the political weight of the “out” region in the ECB Council²⁷;
- actual *stabilization policy* will in general not be optimal. In particular, it is straightforward to show that if the “out” region’s political weight in actual ECB decisionmaking deviates

²⁵ For an analysis of the optimal institutional structure of a currency union central bank purely from the perspective of national policy makers see, for instance, Hefeker (2001).

²⁶ Note that, by construction, the loss function in the “first best” policy program is similar to the Board’s loss function (9).

²⁷ Somewhat more formally, comparing (12) and (14) one easily finds that $E\tilde{\pi}_{ECB} > E\tilde{\pi}^*$, $\partial E\tilde{\pi}_{ECB} / \partial \gamma < 0$, and $\partial E\tilde{\pi}_{ECB} / \partial b < 0$ if $\lambda y_{out}^* > \Delta_{\pi,out}$.

from its economic weight and output shocks in the “in” and “out” regions do not coincide, the ECB’s stabilization efforts will deviate from the “first best” benchmark. Both assumptions are likely to be fulfilled if the membership of the euro area increases without a reform of the present ECB statute. Section II already revealed that the accession countries would be overrepresented in the Council relative to their economic weight²⁸ and pointed to evidence of significant differences in the behavior of business cycles between present and prospective members of the currency union. Moreover, it can be shown that if the “out” region’s business cycle is more volatile than the “in” region’s, actual monetary policy in the euro area will be too volatile according to the benchmark.²⁹

The main conclusion from the above analysis is that the ECB’s monetary policy after enlargement could deviate from a “first best” policy in the spirit of the Maastricht treaty. With enlargement implying a significantly more diverse membership in the sense of differences in preferences, structural inflation, and output shocks, the existing ECB statute—constructed with a somewhat more homogenous group of countries in mind—allows the possibility of these differences distorting monetary policy from the benchmark.

But what are the implications for reform? The analysis suggests that a reform of the present ECB statute should focus both on the relative voting power of the Board (a likely guardian of a centralized euro area perspective) and on the possible overrepresentation of national central banks in the Council.³⁰

G. Implications for Reform

The role of the board

One way to ensure that actual ECB policy adheres to the “first best” benchmark is to give the *Board sole authority for setting monetary policy in the euro area*. This is a direct implication of the assumption that the Board incorporates the policy ideals of the Maastricht treaty, i.e., seeks to minimize a euro area loss function based on economically weighted averages. In more formal terms, it follows straight from equations (12) and (14) that

$$\tilde{\pi}_{ECB} \rightarrow \tilde{\pi}^* \text{ as } b \rightarrow 1.$$

²⁸ At the same time, the degree of *underrepresentation* of larger euro area members could be decreasing (as noted in footnote 10). This being said, enlargement will still increase the overall mismatch between economic and political weights described in the model, a point illustrated in Appendix 1.

²⁹ Formally, a comparison of (12) and (14) reveals $\text{var}(\tilde{\pi}_{ECB}) \neq \text{var}(\tilde{\pi}^*)$ if $\gamma \neq \chi$ and $\varepsilon_{out} \neq \varepsilon_{in}$. Moreover, $\text{var}(\tilde{\pi}_{ECB}) > \text{var}(\tilde{\pi}^*)$ if $\gamma \geq \chi$ and $\text{var}(\varepsilon_{out}) > \text{var}(\varepsilon_{in})$.

³⁰ The advantages of limiting the number of decision makers involved in euro area monetary policy have already been discussed earlier in this section.

The result is straightforward, but a word of caution is in order. As noted earlier, even though the model illustrates key concerns for euro area monetary policy making after enlargement, it is by no means a complete description of all arguments relevant for the institutional design of a central bank in a currency union. For example, while increasing the Board's weight in the ECB Council would help to ensure that monetary policy in the euro area does not give undue consideration to individual member regions, increasing it by too much might run into political and institutional feasibility constraints. Moreover, eliminating national central bank governors from the ECB Council could have a negative effect on the ECB's political independence. The reason is that the direct participation of member countries in the selection of Council members (through the appointment of their respective governors) built into the current ECB statute might contribute to insulating the ECB from preference shocks at the government level, for instance after elections. Section IV will return to these issues in some detail when discussing the centralization scenario for ECB reform. In practice, such considerations might suggest a cautious interpretation of the recommendation to give the Board full authority over monetary policy, perhaps by aiming at only a moderate increase in the voting power of the Board in the ECB Council as the enlargement of the euro area proceeds.

The political weight of national central banks

If the Board does not hold full authority over monetary policy, a “second best” solution to bringing ECB policy closer to the benchmark is to ensure that the *political weight of the countries represented in the Council is in line with their economic weight*. Decreasing the mismatch between economic and political weights would, according to the model, bring actual stabilization policy closer to the “first best” benchmark and, if the “out” region was politically overrepresented before, reduce actual inflation.

The impact of such a reform on the ECB's policy can be illustrated by taking a closer look at equation (12). It is straightforward to show that

$$\tilde{\pi}_{ECB} \rightarrow \frac{-b(1-\chi)\Delta_{\pi,out} + (1-b)(1-\chi)(\lambda y_{out}^* - \Delta_{\pi,out})}{-\frac{\lambda}{1+\lambda}(\chi \varepsilon_{in} + (1-\chi) \varepsilon_{out})} \equiv \tilde{\pi}'_{ECB} \text{ as } \gamma \rightarrow \chi.$$

Comparing the above expression with the benchmark “first best” policy described in equation (14), one finds that $\text{var}(\tilde{\pi}_{ECB}) \rightarrow \text{var}(\tilde{\pi}^*)$ as the gap between political and economic weights closes. In fact, perfectly matching political and economic weights would imply that actual monetary policy is perfectly in line with the ideal policy of stabilizing the euro area business cycle based on a correctly weighted average of the underlying regional cycles. Moreover, while average inflation remains higher than under the benchmark, i.e., $E \tilde{\pi}'_{ECB} > E \tilde{\pi}^*$, it is easy to infer that $E \tilde{\pi}'_{ECB} < E \tilde{\pi}_{ECB}$ if $\gamma < \chi$. The reason is simply that the effective weight of the “out” region's interests—including a more ambitious output target and its inflationary consequences in equilibrium—decrease as a too high political weight is replaced by a smaller economic weight. A corollary of these considerations is that, should a “second best” solution not be

feasible, i.e., if $\gamma \neq \chi$, a “third best” solution would be to bring the political weights of national central banks as closely as possible in line with their economic weights.³¹

IV. DISCUSSION OF MAIN REFORM OPTIONS

The theoretical discussion in Section III suggests that possible reforms of the ECB in light of enlargement should aim at: keeping the number of decision makers on the ECB Council within reasonable limits; strengthening the voting power of the Board; and aligning the economic and political weights of euro area member countries in the Council with one another. On a more practical level, a number of possible reform scenarios could help along these lines.

A. Centralization (Scenario 1)

Centralization (i.e., a larger role for the Board in ECB decisionmaking)³² could help reduce decision-making costs in the ECB Council and prevent possibly diverging economic developments within a larger euro area from having an undue impact on monetary policy.³³

A radical reform of the present ECB decision-making process that would put monetary policy solely into the hands of the ECB Board (for instance, the existing Board of 6) would go a long way toward limiting *decision-making costs* after enlargement (see Section III). Full centralization in that sense would reduce the role of the present ECB Council to that of a forum in which the euro area’s national central banks are informed of policy decisions, and issues of implementing policy decisions—remaining in the hand of national central banks—are discussed.³⁴ While this would constitute a major shift in the ECB’s decision-making framework, many other OECD countries have selected a centralized solution for their central banks, with

³¹ For instance, Casella (1992) argues that some overrepresentation could be a necessary condition for smaller countries to join (and remain in) a currency union.

³² In principle, any change of the ECB decision-making framework that reduces the number of national central bank representatives—relative to a scenario without a reform—and does not decrease the number of Board members qualifies as centralization.

³³ See Section III. The advantages of a stronger role for the centrally-nominated ECB Board were also discussed in the literature on the optimal institutional design of the ECB before the (virtual) euro was introduced in 1999. See, among others, von Hagen and Süppel (1994) and Lohmann (1997, 1998). In light of the enlargement discussion, Baldwin and others (2001) argue for full centralization, pointing to the increase in decision-making costs (see Section II).

³⁴ The General Council of the ESCB, which includes the EU member countries that currently are not also members of the euro area (Denmark, Sweden, and the United Kingdom), already performs a related function. See ECB (2001) for a full description of the General Council’s tasks. The General Council will exist as long as some EU countries remain outside of the euro area.

monetary policy delegated to small groups of 6–9 decision makers—or, as in the case of New Zealand, only the governor—appointed by the central government (compare Table 2).

In addition, full centralization can secure the *euro area-wide perspective* of the ECB Council. The EU Treaty specifies that the Board (including the President and Vice-President of the ECB and four other members) is appointed by “common accord of the governments of the member states at the level of Heads of State or Government, on a recommendation from the Council, after it has consulted the European Parliament and the Governing Council of the ECB” (EU 1997, Article 112 2. (b)). This highly centralized political process on the European level should contribute to the euro area-wide perspective of the nominees selected for the Board.

The question is, should regional central banks indeed be completely deprived of a role in ECB decisionmaking. As already foreshadowed in Section III.G, a number of considerations suggest a somewhat more cautious approach to centralization of ECB decisionmaking.

A first argument alludes to the role of *information*. The efficiency of monetary policy depends to a significant degree on the timely provision, aggregation, and processing of information originating at the regional level—especially in the case of a currency union that encompasses a large number of heterogeneous countries and regions. It might therefore be helpful to ensure that ECB Council members with a strong regional anchor—such as national central bank governors—are directly involved in actual monetary policy decisions, providing the ECB with first-hand, on-the-spot analyses of regional developments within the euro area. The argument is not without practical relevance.³⁵ For instance, Alan Greenspan frequently stresses that the information provided by the presidents of the regional Federal Reserve Banks “contribute[s] vitally to the formulation of monetary policy” (Greenspan 2000, p. 2) in the case of the U.S. Federal Reserve System.

Moreover, full centralization might not be *optimal* in the strict sense implied by the formal argument stressed in Section III. The literature on central bank independence strongly suggests that the monetary authority’s “conservatism” (visible, for instance, in the absence of a too ambitious target for output growth) is only a necessary but not a sufficient condition for low inflation.³⁶ To be effective, a conservative central bank needs to be politically independent, both on an institutional and a personal level. If national governments within a currency union such as the euro area are subject to random shifts in their policy preferences—for example, due to changes in government composition after elections—and the central bank is not sufficiently

³⁵ The Bank of England’s Mervyn King (2002) recently pointed to evidence supporting the view that larger policy committees might make better use of available information than a single decision maker might. The basic argument is that committees might outperform individual decision makers because they allow for information sharing, they give their “best” members a relative high weight in decision making, and members learn from each other in the course of the decision making process (see Blinder and Morgan (2000) for experimental evidence and Gerlach-Kristen (2002) for a theoretical discussion).

³⁶ Berger and others (2001) provide a recent survey of the literature.

shielded from these shocks (i.e., independent), monetary policy might be too volatile from the perspective of society (Lindner 2000).³⁷ The question is what institutional remedies exist in that regard and whether decentralization is one of them.

As Box 1 illustrates, a decentralized appointment process might be a means to moderate the impact of political preference shocks on monetary policy.³⁸ In a fully centralized scenario, a relatively small number of Board members would be chosen through a selection process on the European level that could favor the politically most influential countries in the eurozone. In a completely decentralized process, however, each government would select a central bank governor for a relatively large ECB Council. The latter might be preferable simply because, if political shocks differ across member countries, a fully decentralized nomination process will allow country-specific preference shocks to offset each other to a greater extent than a less balanced, more centralized appointment process. Thus, the current ECB policymaking process, which balances the decision power in the ECB Council between the Board and central bank governors and puts the nomination of the latter entirely in the hands of national governments (EU 1992, Article 14.2), might help moderate monetary policy in a polarized world with random shocks to government preferences, and thus increase the ECB's political independence in this sense.

Box 1. Political Independence and Centralized Appointment: An Example

Assume that the euro currency union consists of two regions, "in" and "out," whose preferences over the rate of inflation, p_i^* with $i = \text{in, out}$, can be expressed as

$$(A1) \quad p_i^* = \bar{p}_i^* + \phi_i,$$

where \bar{p}_i^* is a constant and ϕ_i is a random preference shock with $E\phi_i = 0$ and variance $\sigma_{\phi_i}^2$. For simplicity, set $\bar{p}_{in}^* = \bar{p}_{out}^* = 0$.

Note that because of the stochastic nature of regional preferences, the variance $\sigma_{\phi_i}^2$ might be interpreted as a *measure of political independence* of the union's central bank. The less the ECB's policy target, P_{ECB}^* , varies with the random preference shocks occurring at the membership level, i.e., the smaller $\sigma_{\phi_i}^2$, the more independent is the euro area's monetary policy.

³⁷ See Alesina and Gatti (1995) for a related argument in the context of national monetary policymaking in the presence of electoral uncertainty and partisan party preferences.

³⁸ Another device to moderate the impact of such shocks are sufficiently long and overlapping terms for Council members as implemented in the present ECB decision-making framework (Waller and Walsh 1996, Lindner 2000). The current EU treaty sets the Board member's term in office to eight non-renewable years (EU 1997, Article 112 2. (b)), and initial contracts were staggered to spread the process of re-appointment over time.

Box 1 (continued). Political Independence and Centralized Appointment: An Example

In this simple setup, higher independence is also likely to be associated with higher welfare: since, by assumption, preference shocks have a zero mean, any deviation of p_{ECB}^* from zero is likely to cause a welfare loss in the sense that it would cause unwanted volatility in monetary policy decisions. The question is, whether $\sigma_{p_{ECB}}^2$ will be smaller under a centralized or a decentralized regime.

Under a *decentralized regime*, both governments simultaneously appoint a representative to the ECB Council consisting of two members. Assume that monetary policy decisions within the currency union's central bank, the ECB, are made such that the union's policy target is determined by computing the average of the targets in both regions

$$(A2) \quad p_{ECB}^* = \frac{1}{2}(p_{in}^* + p_{out}^*).$$

Equation (A2) is best understood as representing a bargaining process based on equal weights commensurate with the "one-region-one-vote" principle in line with the basic idea of the Maastricht treaty for the euro area. This implies for the decentralized regime that

$$(A3) \quad \sigma_{p_{ECB}}^2 \Big|_{decentral} = \frac{1}{4}(\sigma_{\phi_{in}}^2 + \sigma_{\phi_{out}}^2 + 2\rho\sigma_{\phi_{in}}\sigma_{\phi_{out}}),$$

where ρ is the coefficient of correlation between the preference shocks in the "in" and the "out" region.

Under a *centralized regime*, the Council consists of just one member, the governor, who is appointed as part of a political process involving the governments of both regions. (The crucial difference here is that, at any given time, in the centralized regime, fewer Council members are appointed. This will always be the case if the centralized Council is smaller and the term length of its members is similar to the decentralized regime.) Then the union's policy target is reduced to

$$(A2') \quad p_{ECB}^* = p_{Governor}^*.$$

If the "in" region's political weight in the nomination process is $\kappa \in (0,1)$, the selected governor will have policy preferences of the type

$$(A4) \quad p_{Governor}^* = \kappa p_{in}^* + (1 - \kappa) p_{out}^*$$

and thus

$$(A5) \quad \sigma_{p_{ECB}}^2 \Big|_{central} = \kappa^2 \sigma_{\phi_{in}}^2 + (1 - \kappa)^2 \sigma_{\phi_{out}}^2 + 2\kappa(1 - \kappa)\rho\sigma_{\phi_{in}}\sigma_{\phi_{out}}.$$

How does (A5) compare to (A3)? If the political shocks in both regions are not perfectly positively correlated, i.e., $\rho < 1$, but show similar variance, i.e., $\sigma_{\phi_{in}} = \sigma_{\phi_{out}}$, it is straightforward to show that

$$\sigma_{p_{ECB}}^2 \Big|_{decentral} < \sigma_{p_{ECB}}^2 \Big|_{central} \Leftrightarrow \kappa \neq \frac{1}{2},$$

Box 1 (concluded). Political Independence and Centralized Appointment: An Example

since $\partial \sigma_{\kappa_{ECB}}^2 \Big|_{central} / \partial \kappa \geq 0$ for $\kappa \leq 1/2$ if $\rho < 1$. In other words, unless the political weights under the centralized regime (i.e. κ in (A4)) are equal (and thus identical to the weights applied in the decision process within the two-member Council as specified in (A2)), the ECB's preferences will display greater volatility in the centralized scenario.

The intuition is that the "one-region-one-vote" principle underlying the two-member Council allows the regional preference shocks to offset each other to a greater extent than the political process driving the appointment of the governor. As long as the shocks are not identical across regions, their weighted average will always be less volatile when the weights are equal than when the weights are unequal. In this example, the central bank is more independent under the decentralized regime in the sense that $\sigma_{P_{ECB}}^2$ will be smaller than under a centralized regime.

A possible caveat to the above finding is that the result may change if the variance of preference shocks differs across regions. If, for instance, the "out" region showed more volatile preference shifts than the "in" region, a centralized regime could increase the central bank's independence if the centralized appointment process gives the "in" region a larger weight than the "out" region. However, in this case the result depends not only on the regions' relative political power but also on the coefficient of correlation and on the extent of the difference in preference volatility.

Regarding differences in preference volatility, it is worth noting that it seems far from clear whether government stability—as an empirical proxy for preference stability—in today's accession countries is indeed significantly lower than in current euro area member countries. According to data provided by Harfst (2001, Table 1), the average government duration in a sample of 10 Eastern European accession countries during the 1990s was about 515 days (with a standard deviation of 238). Somewhat surprisingly perhaps, this is neither strikingly nor significantly different from the post-war (1945–90) average of about 648 days (with a standard deviation of 289) for the 9 euro-area countries included in the Woldendorp and others (1993, p.108) data set.¹

¹ The latter sample includes Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, and the Netherlands; the former includes Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, the Slovak Republic, and Slovenia.

The view that federal elements can contribute to central bank independence has some support in the experience of the German Bundesbank: "[T]he co-responsibility and active involvement of the Länder...are an important element in the Bundesbank's structure and independence." (Bundesbank 1992, pp.49–50.). And indeed not only Germany but also the U.S., another country with a strong federal tradition akin to the EU and the euro area, has organized its central banking systems with a view to a strong—but not too strong—regional representation (see Table 2).

A final argument against allocating the complete decision-making power in the ECB Council to the Board is of a more *pragmatic* (as well as legalistic) nature. As already mentioned, the principle "one person, one vote" is deeply embedded in the present ECB decision-making

framework. The ECB Statute clearly states, “[e]ach member of the Governing Council shall have one vote” (EU 1992, Article 10.2)—which includes the national central bank governors. Thus, a reform that failed to safeguard the established voting rights of current member countries’ central banks might be at odds with the fact that the right to participate in ECB policy decisionmaking was an integral part of the Maastricht treaty that established the currency union in the first place. Not only because many of the current euro area members based their decision to join on referenda, a complete void of voting rights might trigger difficult legal questions that could limit the feasibility of more radical ECB reform scenarios.³⁹ In addition, there might also be political constraints in the sense that some member governments could experience opposition to letting go the “last” bit of influence on ECB policy making after having exchanged monetary sovereignty for a seat at the ECB Council in 1999.⁴⁰

A rough summary of the arguments discussed above is that the extreme scenario of *full* centralization carries a number of disadvantages but that some increase in the voting power of the Board in the ECB Council seems desirable as the enlargement of the euro area proceeds. As Section II revealed, enlargement of EMU could reduce the Board’s vote share in the Council from one-third today to about 18 percent in a currency union with 27 members. This would further increase the difference between the ECB Board’s weight in policy decisions compared to the Board of the Federal Reserve (about 58 percent of all votes in the FOMC) or the Bundesbank Directorate (about 47 percent before 1999—compare Table 2). A pragmatic solution along this line that also satisfies the need to keep the overall size of the ECB Council in check could be to hold the present number of ECB Board members of 6 constant but limit (or even reduce) the number of national central bank representatives in the Council.

A consequence of stopping short of full centralization is that complementary reforms addressing the mismatch between the political and economic weights of the national central banks in the ECB Council are advisable. The discussion of the reform scenarios below will address this issue.

³⁹ Note that this restriction does not apply to prospective new euro area members, who could be asked to join—or not to join—a different, i.e., reformed, ECB framework.

⁴⁰ Especially in the United Kingdom, sovereignty is one of the most discussed issues in the debate on the euro. Many critics argue that giving up the Pound is tantamount to surrendering national sovereignty and “its loss would [not] be compensated by being given one vote out of 15 or more when it comes to deciding the single European interest rate.” (Howard 2002, p. 2).

B. Weighted Voting (Scenario 2)

An alternative (or complementary) reform option would be a weighting scheme. Under this scenario, the votes of non-Board members of the ECB Council would be weighted when cast for monetary policy decisions, for instance by using member countries' shares in euro area GDP. By definition, a reform along these lines would better align the *political and economic weights* of the national Council members, helping to limit some of the potential problems caused by divergent economic developments within the euro area and overrepresentation of certain countries within the ECB Council. As discussed earlier, this route to reform is of particular value when full centralization of decisionmaking might not be desirable or an option.

An optimal weighting scheme would allocate voting rights to match perfectly the distribution of economic weight within the euro area. The lower panel of Figure 2 in Section II can help to gauge what such a reform would imply: all 27 member countries in the enlarged currency union (EA27) would still participate in ECB Council meetings, but they would no longer hold equal voting rights (the black lines in the figure). Instead, each national central bank representative would be allocated a weighted vote identical with the nominating country's GDP share in 2001 (indicated by the white lines).⁴¹ In addition, a—yet to be specified—number of Board members would participate in monetary decisions.

Before turning to a discussion of some of the problems of a weighted voting scheme, it is worthwhile to explore the *political feasibility* of this scenario.

In contrast to the idea of full centralization, there is precedence for decisionmaking on the European (or EU) level based on weighted majority rules. In fact, many decisions in the EU Council of Ministers are already decided based on a so-called “qualified majority rule” (EU 1997, Article 205). Each country or minister is allocated a certain number of votes ranging from 10 for Germany to 2 for Luxembourg (see Table 3 for more details). For acts of the Council of Ministers to be adopted, a minimum of 62 votes (71.3 percent of total votes) is needed in most cases. The votes allocated to each country generally reflect its ‘size’, taking into account both measures of population and economic strength.⁴²

⁴¹ Alternatively, weights could be based on population or a combination of a population and GDP shares (compare the Nice example below). The basic argument remains the same.

⁴² The correlation between population and GDP share of current EU member countries is quite high, with a coefficient of correlation above 0.95 for the year 2001. The coefficient for the larger EA27 sample including all current accession countries is 0.97.

Table 3. Qualified Majority Voting in the EU 1/

Country	Current Status		After 2005 according to the Treaty of Nice:			
	Votes	Share	Pre-enlargement		Post-enlargement 2/	
	Votes	Share	Votes	Share	Votes	Share
Germany	10	11.5	29	12.2	29	5.0
United Kingdom	10	11.5	29	12.2	29	5.0
France	10	11.5	29	12.2	29	5.0
Italy	10	11.5	29	12.2	29	5.0
Spain	8	9.2	27	11.4	27	4.7
Netherlands	5	5.7	13	5.5	13	2.3
Sweden	4	4.6	10	4.2	10	1.7
Belgium	5	5.7	12	5.1	12	2.1
Austria	4	4.6	10	4.2	10	1.7
Poland	n.a.	n.a.	n.a.	n.a.	27	4.7
Denmark	3	3.4	7	3.0	7	1.2
Finland	3	3.4	7	3.0	7	1.2
Greece	5	5.7	12	5.1	12	2.1
Portugal	5	5.7	12	5.1	12	2.1
Ireland	3	3.4	7	3.0	7	1.2
Czech Republic	n.a.	n.a.	n.a.	n.a.	12	2.1
Hungary	n.a.	n.a.	n.a.	n.a.	12	2.1
Romania	n.a.	n.a.	n.a.	n.a.	14	2.4
Slovak Republic	n.a.	n.a.	n.a.	n.a.	7	1.2
Luxembourg	2	2.3	4	1.7	4	0.7
Slovenia	n.a.	n.a.	n.a.	n.a.	4	0.7
Bulgaria	n.a.	n.a.	n.a.	n.a.	10	1.7
Lithuania	n.a.	n.a.	n.a.	n.a.	7	1.2
Cyprus	n.a.	n.a.	n.a.	n.a.	4	0.7
Latvia	n.a.	n.a.	n.a.	n.a.	4	0.7
Estonia	n.a.	n.a.	n.a.	n.a.	4	0.7
Malta	n.a.	n.a.	n.a.	n.a.	3	0.5
Total	87	100.0	237	100.0	345	100.0
Vote threshold 3/	62	71.3	169	71.3	258	74.8

Sources: EU (1997 Art.205, 2001a Art.3, 2001b Declaration 20); own calculations.

1/ Shown are the votes allocated to each EU member's ministers in the council.

2/ Defined as the EA27 case (see above) with 27 overall EU members.

3/ As defined in the Nice Treaty.

The Treaty of Nice adjusted these weights in December 2000. The adjustments—while incremental—favor the economically larger countries within the EU. Pending ratification by all EU members, the changes will become effective in 2005. The intergovernmental conference preparing the treaty also added additional criteria, including that a member country might request “verification” that the votes constituting a qualified majority represent at least

62 percent of the EU's population.⁴³ As Felsenthal and Machover (2001) show, this additional criterion adds somewhat to the voting power of Germany at the expense of some of the smaller EU countries, but the overall effect is negligibly small.

Even more interestingly, the Nice conference also adopted a declaration that specified a rule for qualified majority voting in the Council of Ministers in case of an enlargement to 27 members (EU 2001b, Declaration 20). Table 3 shows the details of the post-enlargement vote allocation for all envisaged EU members. At 74.8 percent, the threshold defining a qualified majority is slightly higher than today. While the absolute votes allocated to present EU members remain unchanged, their relative voting power declines, reflecting changes in relative size due to enlargement.⁴⁴ The additional population criterion discussed above is still in place, but its actual impact remains "nugatory" (Felsenthal and Machover 2001, p. 29).⁴⁵

What would such a weighting scheme, combined with the discussed strengthening of the Board's position in the Council, do for the ECB? Figure 5 compares the economic and political weights of central bank governors in the ECB Council based on the vote allocation specified in Table 3. Trying to strike a balance between the advantages and disadvantages of full centralization discussed in Scenario 1, the figure assumes that the ECB Board casts 40 percent of the overall Council votes.⁴⁶ This vote share for the centrally appointed members of the Council implies a notable increase from the current share of one-third, but stops short of raising the ratio to level of the 1999 Bundesbank (about 47 percent) or today's Fed (about 58 percent).

⁴³ The legal text (as published in the Nice treaty's definitive form in February 2001) also includes the demand that a qualified majority should include at least 8 out of 15 members *in addition* to the minimum of 169 votes mentioned above. A closer look at Table 3 shows, however, that the former condition is *always* fulfilled if the former is: the weighted votes of the largest 8 states add up to exactly 62. Not surprisingly, Felsenthal and Machover (2001, p.4) call this a "strange" feature of the Nice treaty.

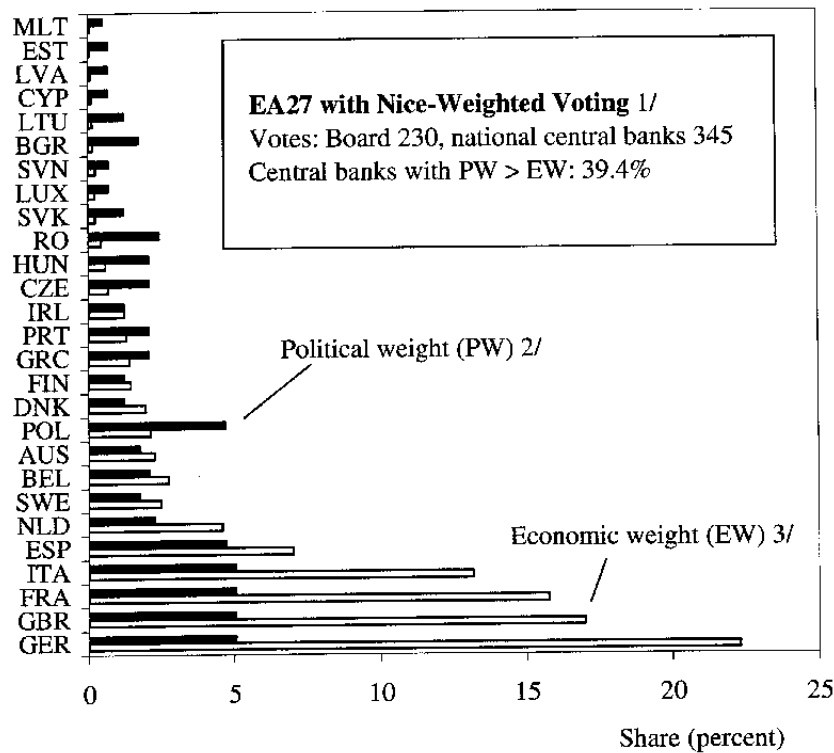
⁴⁴ The correlation between the population share and the GDP share with the vote share defined by the Nice treaty for the EA27 sample are 0.84 and 0.83, respectively.

⁴⁵ The treaty also specifies that, in addition, a "majority" of members is needed to constitute a qualified majority in the sense of the law (EU 2001b, Declaration 20). However, this criterion is always fulfilled if the weighted-vote threshold (see Table 3) is met.

⁴⁶ Based on the 345 votes allocated to national representatives in the Council in line with the Nice treaty, this would imply a vote allocation of 230 to the Board. For the reasons given earlier, Figure 5 abstracts from the 62-percent criterion when translating the Nice arrangement for the EA27 into an ECB weighing scheme. However, note that, since the Board's votes are included in the overall number of votes, a simple majority of Council votes implies that the threshold for a qualified majority *among the member countries* specified in the Nice treaty is fulfilled, too.

Compared to an enlargement scenario without a reform of the ECB decision-making framework, the combination of the Nice voting scheme and the modest increase in the Board's vote share clearly improve the match between the political and economic weight of non-Board members of the Council. While without a reform, more than $\frac{3}{4}$ of all members appointed at the national level would hold vote shares exceeding the appointing country's GDP share in the euro area (see the lower panel of Figure 2), this ratio reduces to less than 40 percent in Figure 5. Even to gain the simple majority of Council votes, a possible coalition of the central bank governors of the euro area's "smaller" countries would need to unite 26 out of 27 non-Board members (that is, all national central banks but the Bundesbank) and to represent 77.7 percent of the euro area's GDP.

Figure 5. An Example of Weighted Voting Following the Treaty of Nice



Sources: EU (2001b, Declaration 20, Table 2); Eurostat; IFS; World Economic Outlook; own calculations.

1/ EA27 is defined in Figure 1.

2/ The share of a country in the euro area's GDP.

3/ The vote share of a country's central bank governor in the ECB Council.

The discussion so far suggests that a weighted vote scenario would support the euro area perspective of the ECB Council and could be based on political precedent—but would weighted voting control *decision-making costs* after enlargement? Decision-making costs in the narrow

sense of voting on, say, interest rate changes need not be a particular reason for concern. While the process is slightly more involved than under the current one-person-one-vote rule, technology should make the process just as smooth. However, to the extent that the decision-making process within the Council involves more than the simple aggregation of votes, but also, for instance, the exchange of views by all members, weighting votes does not necessarily solve the ECB's "large number problem."

In fact, decision-making costs under a vote-weighting reform scenario are likely to be as high as in the absence of a reform of the ECB statute. As discussed in Section II, Council decisions are rarely based on voting alone. As a rule, the decision-making process involves the exchange of information and opinions between Council members until a consensus is reached that is then put to vote. After enlargement, with up to 27 national central bank representatives and (the assumed) 6 Board members participating, the time and effort needed to come to a policy decision might be considerable.

Finally, similar to the *legal* argument made regarding the centralization solution in Scenario 1, it should be noted that a weighted voting scheme might be viewed as interfering with the "one person, one vote" principle embedded in the ECB Statute (EU 1992, Article 10.2). Under the current legal framework, interestingly, weighted voting is required for some Council decisions—including for decisions relating to the ECB's capital (EU 1992, Article 28)⁴⁷—but monetary policy decisions entail only a simple majority of unweighted votes. While an extension of weighted voting to monetary policy matters would stop well short of the complete elimination of the voting rights of national central bank governors implied by the centralization scenario, it would still imply a severe reduction in the political weight of many. As noted above, such a reform might trigger difficult legal questions that could limit its feasibility.

C. Representation (Scenario 3)

A third reform scenario, representation, combines some of the characteristics of the centralization and the weighting approach. The principle idea would be to organize the euro member countries in groups with joint representation and joint voting rights in the ECB Council, integrating the concept of a strong regional anchor with the necessity of restricting the size of the ECB's main decision-making body after enlargement.

The representation scenario requires a number of specific institutional decisions, including importantly on *group selection*. The selection principle could be based on the idea of common economic regions (taking into account similarities in business cycles or economic structure), economic size, or both. Scenario 4 provides a more detailed discussion of the pros and cons of either principle. Related issues are the *number of groups* and the overall *Council size*. The number of groups should be guided by the targeted overall Council size. Reflecting the discussion in Scenario 2, a reasonable setup would include 6 Board members—with full voting

⁴⁷ The weights specified in the ECB statute are based on the arithmetic average of a member country's share of the euro area's aggregated GDP and population (EU 1992, Article 29.2).

rights in the Council—and 9 national central bank representatives, bringing the overall size of the ECB Council to 15. At 15, the Council would be somewhat smaller than today (with 18 members), but still larger than, for instance, the Fed’s FOMC (with 12 voting members) (see Table 2). In this setup, the vote shares of centrally- and nationally-appointed ECB Council members would be the same as in Scenario 2, with 40 percent of the votes allocated to the Board.

Group selection also has implications for the design of *voting rights* in the representation scenario. If the resulting group structure was asymmetric with respect to economic size, the votes of the group representatives in the Council should be weighted to ensure broad overall similarity between political and economic weight. Alternatively, if group selection led to groups of similar economic size, the group representatives in the ECB Council should hold similar voting rights in the Council. Such an approach would have the added advantage that it would implicitly weight the votes of national central bank governors. For instance, a large number of governors representing smaller countries could be organized in one group with (just) one representative in the Council.⁴⁸

An issue of some importance in the representation scenario is the *delegation* of voting power from group members to their representative in the ECB Council. The alternative institutional designs range from a restricted or “imperative” mandate (votes in the Council are pre-determined at the group level) to an unrestricted mandate (group members delegate their full voting rights to their representatives).⁴⁹ However, since the latter arrangement could, in principle, deprive individual group members of their right to participate in the decisionmaking, there is a potential conflict with the idea of regional representation and the “*one person, one vote*” principle embedded in the ECB’s legal framework (see the discussion under Scenario 1). This makes a solution entailing some form of explicit involvement of national central banks at the group level before a Council decision, i.e., a restricted mandate for the group representatives in the Council, a probable part of any representation scenario. Such a restriction is likely to encompass contributions to Council discussions (especially when such discussions prepare decisions by consensus) as well as formal voting.

A final concern is *decision-making costs*. The discussion so far shows that a reform of the ECB decision-making framework based on the representation scenario could help limit the number of

⁴⁸ Arguably, this arrangement is less in conflict with the “one person, one vote” principle than the centralization or weighting reform scenarios previously discussed. There is, however, a potential conflict between the “one person, one vote” idea and the delegation of voting power from group members to their representative in the Council meeting. See the discussion below.

⁴⁹ The organization of the IMF Board is an example of the unrestricted mandate principle. Of the 24 Board members, 16 Executive Directors are elected representatives of groups of IMF member countries, 3 represent single member countries, and 5 are directly appointed. While, in practice, all Directors operate in close collaboration with their constituency, the IMF’s Articles of Agreement do not require Directors to consult their constituency or seek their approval before casting a vote in the Board. See Gianviti (1999).

voting members at the ECB Council to a reasonable level and, at the same time, ensure that Council members broadly represent the euro area economy. However, the representation scenario might fail to fully control the increase in decision-making costs that can accompany the growth of the euro area.

The amount of decision-making costs under representation depends on the precise mandate of the representatives at the Council level. As argued above, the idea of regional representation necessitates involvement of national central banks at the group level before the ECB Council will actually take a policy decision. If the mandate of group representatives in the Council were fully restricted, in the sense that all their actions would require the explicit and full consent of all group members, the overall time and effort needed for a Council decision could be just as high as in Scenario 2. In this case, the switch from a weighting to a representation scheme would merely imply a reallocation of decision-making costs from the central to the group level.⁵⁰ If, on the other hand, there were at least *some degree of delegation* of voting power from the individual level to group representatives—be it by way of formal delegation or through actual practice—decision-making costs in the representation scenario would probably be lower than under a weighting scheme.⁵¹ A reasonable assumption is probably that the decision-making cost under the representation scenario would be somewhat lower than under weighted voting but would still exceed those under the centralization scenario.

D. Rotation (Scenario 4)

A reform scenario that, in principle, might be able to address both the mismatch between political and economic weights and the decision-making problem associated with the enlargement of euro area membership could be (asymmetric) rotation.⁵² The basic idea is that national central bank governors would take turns sitting at the Council, with the frequency of their participation—measured, for example, in consecutive years spent on the ECB Council or number of consecutive Council meetings attended—scaled to match the relative *economic weight* of their respective country. Rotation would thus work to weight the votes of national central bank governors in an implicit fashion.

⁵⁰ In fact, decision-making costs might be higher under such a representation scenario, since, other than in the weighted vote scenario, the decision making process in the representation scenario moves in stages rather than simultaneously.

⁵¹ The extreme would be an “elected Board,” i.e., a Board consisting of national central bank governors elected (for a certain period of time or number of Council meetings) by national bank governors. To the extent that the represented governor would indeed forgo all influence on Council decisions, such a representation scheme would almost perfectly mimic the centralization scenario except for the decentralized appointment process of the governors.

⁵² An example for such a rotation scheme is the U.S. Fed. The Federal Reserve Bank of New York is allocated a permanent seat in the FOMC, while the remaining 4 seats held by regional FOMC members rotate between the remaining 11 other regional central banks in the Fed system (see Table 2).

Arguably, rotation will pose less of a conflict with the “*one person, one vote*” principle than centralization, weighted voting, or the representation scenario, because, while not all governors would be participating in every Council meeting, those who participate would be casting a full vote.

Rotation could also serve to limit the overall *size of the ECB Council* by allowing only a fraction of central bank governors to participate in meetings. Reflecting arguments discussed under Scenario 3, a reasonable target would be, for example, an ECB Council of 15, with 6 Board members joining 9 central bank governors drawn from the population of all euro area member countries. Board members would hold a permanent seat at the Council.

A characteristic the rotation scenario shares with the representation scheme discussed earlier is the necessity to *pool countries in groups*. However, while Scenario 3 selected countries into groups for the purpose of joint representation in the Council, rotation requires pooling to ensure that those selected to participate in a meeting represent a sufficiently large share of the euro area in economic terms. Consider the example of the four largest economies in the euro area, Germany, France, Italy, and (after enlargement) the United Kingdom, jointly representing roughly 70 percent of the euro area GDP. If Council meeting participants were simply drawn with certain (asymmetric) probabilities from the overall sample of governors, there would be a small positive chance that none of the larger euro area economies would be selected into the Council. In such a case, the national central bank governors participating in the ECB Council would represent less than 30 percent of the euro area’s GDP.⁵³ The alternative is to organize these four countries into a group, which would jointly occupy one or more Council seats. As a consequence, at a minimum, one member of the group would be present at ECB Council meetings at all times, ensuring that the governors in the Council stand for a significant part of the euro area. By extension, similar groups could bundle euro area central banks of medium and smaller size and so on.

Figure 6 illustrates the institutional decisions involved when setting up an asymmetric rotation design where group selection is based strictly on economic size. The upper panel shows the familiar comparison of political and economic weights for the hypothesized enlarged euro area with 27 members. The lower panel describes the assumed allocation of countries to four groups (first column), the number of seats attributed to each group (second column), the frequency with which group members rotate into the group’s Council seat(s) (third column), and the minimum, mean, and maximum GDP share held by the respective group representative(s) in the ECB Council (columns four to six). The GDP shares vary with the specific governor(s) selected to fill

⁵³ In the worst case, with the area’s 9 smallest economies selected into the Council, these countries would represent as little as 1½ percent of the euro area GDP. In the best case, with the area’s 9 largest countries (next to Germany, France, Italy, and the United Kingdom) present, they would represent 26.1 percent.

the seat(s) because, despite being grouped by size, group members still differ regarding their economic weight.⁵⁴

How does the example fare with regard to the ratio of *political and economic weights* of central bank governors? Political weights (shown in the upper panel of Figure 6) are computed by multiplying the rotation frequencies with the overall number of Council seats. Based on 9 selected governors and 6 Board members, the ECB Council would have 15 members. The rotation frequencies are defined in equivalents of a permanent Council seat. A frequency of 0.5, for example, indicates that a particular governor will participate in half of all ECB Council meetings—e.g., occupy a Council seat every second year or participate in every second meeting depending on the specific implementation of the scheme. As Figure 6 reveals, about 52 percent of the 27 central bank governors hold a political weight (i.e., vote share) that exceeds the economic weight of their respective country in the rotation scenario. While the ratio is higher than under the weighted voting scenario (Figure 5), it remains significantly below the almost 78 percent that resulted if enlargement occurred without a reform of the ECB decision-making process (lower panel Figure 2). In fact, the mismatch between political and economic weight in the rotation scheme exemplified in Figure 6 is even somewhat lower than in today's ECB.⁵⁵

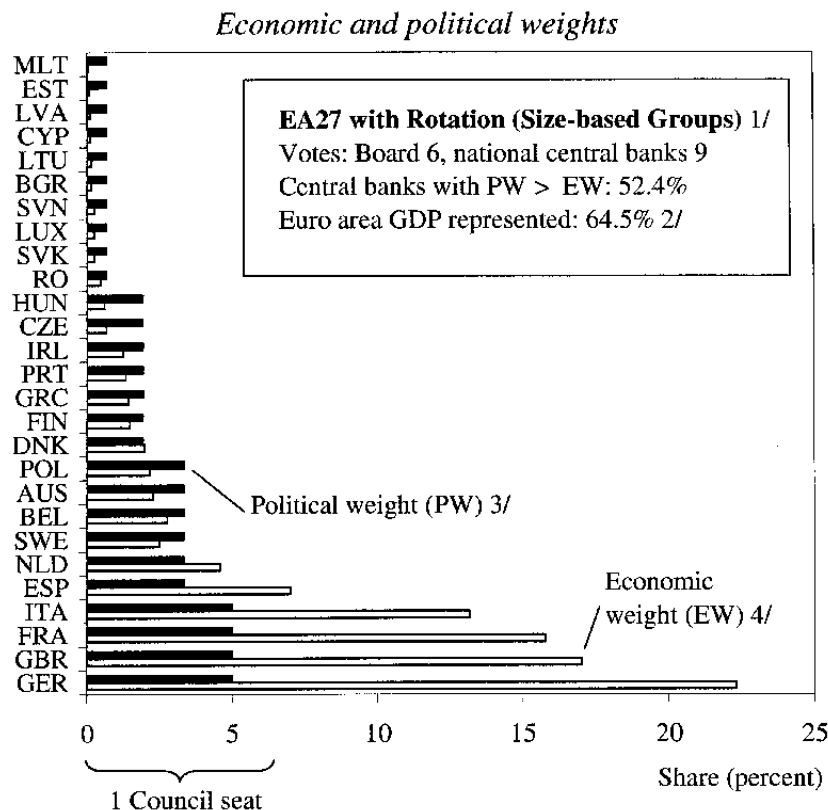
Rotation would imply that at any given time only a fraction of euro area countries is represented by national central banks at ECB Council meetings. As a consequence, on average, only about 65 percent of the area's GDP is represented by governors (see the box in Figure 6). While this figure is considerably lower than under the weighted voting scenario, where all members would be sitting at the Council table, it does not necessarily imply a weaker regional basis in the sense of the political economy arguments discussed in Scenario 1.⁵⁶ In scenario 4 as well as in scenario 3, the voting share of the centrally appointed Board members of the Council remains limited to 40 percent, stopping well short of full centralization. The only difference between rotation and weighted voting in this regard is that in the former scenario regional representatives take turns at the Council table.

⁵⁴ By construction, this variance is decreasing in the number of groups in the setup, and smaller groups could be considered. For instance, group (2), including Spain, The Netherlands, Sweden, Belgium, Austria, and Poland, is readily divided into three subgroups of 2 sharing 1 Council seat each. If the selection into subgroups were again based on size, this would reduce the average standard deviation between the minima and maxima of the rotation groups from about 2.3 in the example with 4 groups to about 1.2. Note that splitting would not change individual rotation frequencies or political weights.

⁵⁵ The upper panel in Figure 2 shows that the percentage of governors holding a voting weight exceeding their economic weight is about 58 percent.

⁵⁶ For instance, the fact that countries would remain directly involved in the nomination of Council members might buttress the ECB's political independence (see above).

Figure 6. An Example of Asymmetric Rotation Based on Size



Rotation groups and frequencies

Group	Seats	Frequency 5/	GDP share 6/		
			Min	Mean	Max
(1) GER, GBR, FRA, ITA	3	all 0.75	46.0	51.2	55.1
(2) ESP, NLD, SWE, BEL AUS, POL	3	all 0.50	7.2	10.6	14.1
(3) DNK, FIN, GRC, PRT IRL, CZE, HUN	2	all 0.29	1.3	2.5	3.4
(4) ROM, SVK, LUX, SVN, BGR, LTU, CYP, LVA, EST, MLT	1	all 0.10	0.1	0.2	0.5
<i>Sum:</i>		9	<i>Average:</i> 54.4 64.5 73.1		

Sources: Eurostat; IFS; World Economic Outlook; own calculations.

1/ EA27 is defined in Figure 1.

2/ Percentage of the euro area's GDP that is—on average—represented by national central bank representatives in the Council. GDP shares vary due to rotation.

3/ The share of a country in the euro area's GDP.

4/ The vote share of a country's central bank governor in the ECB Council.

5/ Each group member's rotation frequency.

6/ Average, minimum, and maximum GDP share held by a group's representative in the Council depending on the rotation.

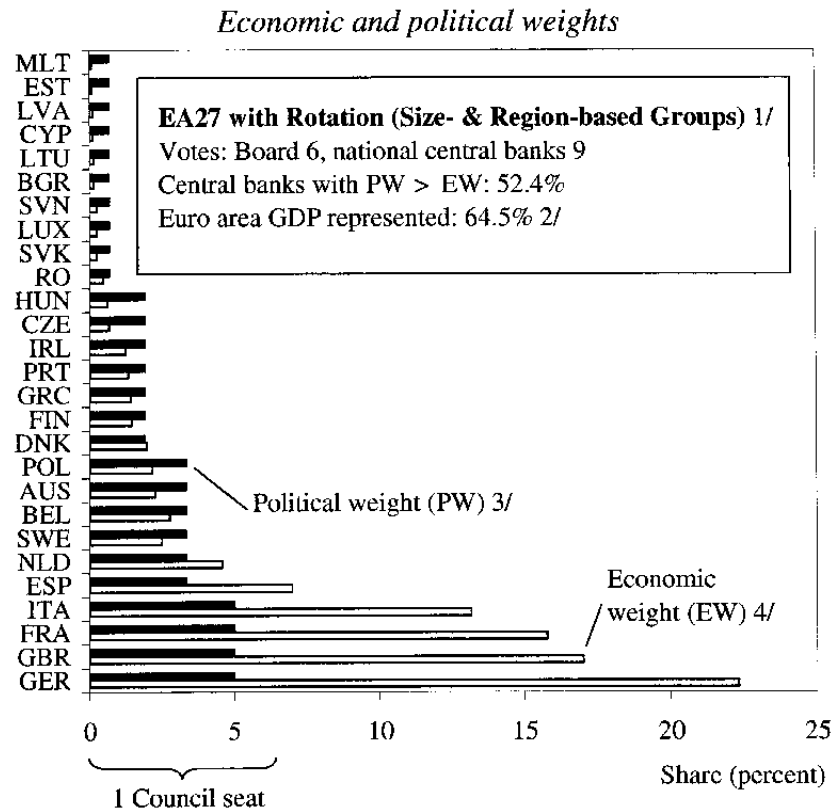
A possible disadvantage of group selection by size is that it might make groups heterogeneous along other dimensions. There is, for instance, reason to assume that *business cycles* are more closely correlated and *structural inflation* performance is more closely linked in some economic regions or within groups of countries of differing size. Examples include the Nordic region, but also, as discussed in some detail in Section II, the accession countries.⁵⁷ The example of size-based rotation scheme depicted in Figure 6 illustrates that, in practice, the trade-off between alternative selection principles might not be too severe. While the scheme makes no conscious effort to take into account other economic characteristics, it nevertheless selects the majority of accession countries into group (4) and the larger euro area economies into groups (1) and (2).⁵⁸ This limits the possible conflict with selection principles such as business cycle coherence and structural inflation to some degree. Still, the question remains, what could be gained by a re-allocation of countries in this regard?

To shed some light on the issue, Figure 7 develops an alternative example for a rotation scheme that regroups countries to improve the match between business cycle movements and inflation behavior without fully neglecting the size-principle. The presentation follows Figure 6. Groups (1) and (4) remain unchanged—Figure 6's group (4) has merely been renamed group (7)—and group (5) is purely size-based. In addition, the example in Figure 7 features three distinct regional groups (Spain and Portugal; Belgium and the Netherlands; and Sweden, Denmark, and Norway) and a group of potential 'fast-growers' (Greece, Ireland, the Czech Republic, and Hungary).

⁵⁷ Figure 4 points at some heterogeneity among current euro area members. Greece and Ireland, in particular, showed less synchronized business cycle movements with the euro area than other countries.

⁵⁸ The United Kingdom and Sweden would also be members of these groups. While their inflation performance is broadly in line with the euro area, the United Kingdom business cycle moved somewhat less in line with the euro area core (Germany, France, and Italy) in the 1990s. Based on the methodology and data used for Figure 3, the correlation coefficient is 0.26, clearly below the weighted average within the euro area during this period (see Figure 3). In contrast, the correlation coefficients for Sweden and Denmark (a member of group (3)) are in the range of the euro area average.

Figure 7. An Example of Asymmetric Rotation Based on Size and Regions



Rotation groups and frequencies

Group	Seats	Frequency 5/	GDP share 6/		
			Min	Mean	Max
(1) GER, GBR, FRA, ITA	3	all 0.75	46.1	51.6	55.1
(2) ESP, PRT	1	ESP 0.50, PRT 0.29	1.3	5.5	7.0
(3) BEL, NLD	1	all 0.50	2.8	3.7	4.6
(4) SWE, DNK, FIN	1	SWE 0.50, all others 0.29	1.5	2.1	2.5
(5) AUS, POL	1	all 0.5	2.2	2.2	2.3
(6) GRC, IRE, CZE, HUN	1	all 0.29	0.6	1.0	1.4
(7) ROM, SVK, LUX, SVN, BGR, LTU, CYP, LVA, EST, MLT	1	all 0.10	0.0	0.0	0.5
<i>Sum:</i>	9		<i>Average:</i> 54.3	64.5	73.3

Source: Eurostat; IFS; World Economic Outlook; own calculations.

1/ EA27 is defined in Figure 1.

2/ Percentage of the euro area's GDP that is—on average—represented by national central bank representatives in the Council. GDP shares vary due to rotation.

3/ The share of a country in the euro area's GDP.

4/ The vote share of a country's central bank governor in the ECB Council.

5/ Each group member's rotation frequency.

6/ Average, minimum, and maximum GDP share held by a group's representative in the Council depending on the rotation.

As one would expect, the average spread in country size within groups is somewhat larger in the Figure 7 variant than in the Figure 6 variant. However, since the rotation frequencies are the same, both the average share of euro area GDP represented by the governors and the percentage of governors holding voting power in excess of their respective country's economic weight remain unchanged. At the same time, the Figure 7 rotation groups are more coherent both with regard to inflation and (somewhat less pronounced) business cycle movements: the standard deviation of inflation 1996–2001 within groups is 1.9 in Figure 6 and 1.2 in Figure 7; the standard deviation of the coefficient of correlation between country business cycles and the euro area core 1990–2001 within groups is 0.5 in Figure 6 and 0.4 in Figure 7.⁵⁹

Comparing Figures 6 and 7 allows a glimpse at the tradeoffs that can be involved when designing the details of an asymmetric rotation scheme, suggesting that an ECB reform along this line would require careful balancing of the costs and benefits of the particular setups under consideration. While the analysis presented above suggests that these tradeoffs need not always be severe, there is clearly room for further research and discussion.

V. CONCLUDING REMARKS

Without reform, euro-area enlargement will complicate the way monetary policy is formulated in the ECB's Governing Council. Within a few years, euro area membership could more than double, with the majority of accession countries being small in economic terms compared with current members. In the absence of a reform of the ECB's decision-making process, such a *significant but asymmetric expansion* has the potential to lead to a severe *mismatch between the economic and political weights* of national central banks in the ECB Council, possibly resulting in a less than optimal monetary policy, and to increase *decision-making costs*.

The paper illustrates the importance of these possible consequences of enlargement and describes four reform scenarios: centralization, weighted voting, representation, and rotation. All aim to address some of the fundamental issues of growing euro area membership. While other reform schemes might be imagined and many of the more detailed institutional design questions involved could be answered in more than one way, these four basic scenarios depict the principle avenues of reform.

A brief *summary of the reform approaches* (Table 4)—focusing on how they would seek to mitigate the potential complications arising from euro area enlargement—suggests that the *centralization* and *rotation* schemes offer a somewhat more complete solution to the problems euro area enlargement poses for monetary policymaking in the euro area. While both *vote-weighting* and *representation* could ensure that ECB Council members carry a political weight roughly in proportion to economic size—i.e., that the Council is broadly representative of the

⁵⁹ These figures are constructed by computing the standard deviation of inflation and the coefficient of correlation within the groups and then calculating the weighted average across groups for both variants of the rotation scheme. The result for the coefficient of correlation excludes group (1). Based on the data and methodology employed for Figure 3 (see above).

euro area it governs—the large number of policy makers involved under these reform scenarios (directly or indirectly) could be reason for concern. Approaches that aim at the centralization of decision-making power and/or its reallocation by means of an asymmetric rotation scheme can address not only the possible wedge between the economic and political weights of Council members but also the issue of decision costs.

A reform of the present framework for ECB decisionmaking that would keep the voting power of the ECB Board constant—or increase it—notwithstanding the envisaged growth in euro area membership, could work to buttress the euro area perspective of the ECB Council. While full *centralization*—proposed by some—has many advantages, a number of informational and political economy considerations suggest that giving the Board sole power over monetary policy decisions might not be optimal. For instance, a presence of national central bank governors in the ECB Council is often viewed as helping with the production and processing of information originating on the regional level. There is also the pragmatic (or legalistic) consideration that full centralization would fail to safeguard the established voting rights of current member countries' central banks, which were an integral part of the Maastricht treaty that established the euro area in the first place. Moreover, as explained in the paper, a role for national central banks in ECB decisionmaking, while potentially problematic on other grounds, might contribute to the independence (as defined in the paper) of the euro area central bank. These arguments suggest that reforms should ensure that the Board continues to play an important—but perhaps not a dominant—role in the ECB Council as the euro area grows.

Organizing the presence of national central bank governors in the ECB Council along the lines of a *rotation* scheme could help to limit the overall number of voting Council members. In addition, if rotation frequencies were selected asymmetrically to reflect the relative economic size of their respective countries, rotation could secure the congruence of the political and economic weights of euro area member countries. The analysis summarized in Table 4 implies that rotation, despite the growth in euro area membership, is better suited to ensure the efficiency of decisionmaking than a weighted voting scheme. In addition, it is also more in line with the “one person, one vote” principle embedded in the Treaty of Maastricht and, thus, the existing voting rights of current member countries than a representation scenario.

Table 4. Summary of Key Characteristics of the Status Quo and the Reform Scenarios

Scenarios	Decision-Making Costs	Board Vote Share 1/	Policy Costs Due to Misalignment of Economic and Political Weights
Status quo: Full enlargement without a reform of the existing ECB framework. All governors hold a seat in the Council	Very high: all governors are Council members	18.2	Severe (77.8 percent) 2/
Centralization: Decision power rests with the Board. Governors are no longer involved in monetary policy decisions	Very low: Board only	100.0	None
Weighted voting: Following the Nice example, governor votes are weighted. All governors participate in Council meetings	Very high: all governors are Council members	40.0	Low (39.4 percent) 2/
Representation: Groups of governors are jointly represented at council meetings. Representatives with restricted mandate—decisions pre-determined at group level	High: all governors are (indirectly) involved in council decisions	40.0	Depends on group selection. Could be similar to rotation
Rotation: Asymmetric rotation of governors into Council	Low: only board and selected (but changing) governors are council members	40.0	Moderate (52.4 percent) 2/

1/ In percent of all council votes.

2/Percentage of governors that hold voting power in excess of the economic weight of their respective country (compare Figures 2, 5, 6, and 7, respectively).

A reform based on the principles of strong Board representation in the Council and rotating national central bank governors also appears to be the focus of the *on-going discussions* in the Council. The current debate seems to be focused on variants of the rotation scenario that (i) guarantee all euro area members a seat at the Council; (ii) make sure that all countries—including the larger ones—are rotating at some point; and (iii) ensure that the ECB Council members selected by the rotation scheme account for a sufficiently large share of euro area GDP. The analysis in the present paper illustrates that such considerations imply certain constraints on a rotation scheme that prohibits perfectly aligning political and economic weights of national central banks, but the associated cost of these constraints might be small.

There are, however, a number of *institutional details* in a rotation scheme that require close attention, including the question of how to group countries for rotation. Rotation requires pooling to ensure that those governors participating in a Council meeting represent a sufficiently large share of the euro area in economic terms. If governors were just drawn from the full sample of national central bank representatives, there would be a positive probability that none of the larger euro area economies would be selected. A possible remedy is a strategy for grouping countries by size and allocating each group a certain number of Council seats. For instance, the n largest euro area countries could jointly be allocated $n-1$ Council seats. But selecting countries based on size might increase heterogeneity along other dimensions such as business cycle synchronization and structural inflation. The present paper offers a first assessment of some of the costs and benefits involved. While it seems that that these *tradeoffs* need not always be severe, there is clearly room for further research and debate.

APPENDIX I: ENLARGEMENT AND THE MISMATCH BETWEEN ECONOMIC AND POLITICAL WEIGHTS

Would the accession of a large group of “overrepresented” new member countries accentuate the mismatch between economic and political weights in the bargaining approach used in the analysis? Contrary to what one might expect, this is not necessarily the case. The reason is that, in a bargaining scenario, Council decisions will reflect the interest of all parties involved, including those of both the larger and smaller member countries and of the Board.¹ Thus, the answer to the question of how enlargement will influence the difference between economic size and effective political power of country representatives depends not only on the relative economic size and voting power of national central bank governors (country effect) in the Council but also on the role of the Board (Board effect). These effects point in different directions.

Country effect: While enlargement amplifies the overrepresentation of smaller countries (just as under majority voting), at the same time, in the bargaining framework, there is a strong impact on the underrepresentation of the larger euro area member countries. This is because the economic weight of larger countries decreases more sharply than their vote shares in the Council as enlargement progresses. To give an empirical example, assuming a zero vote share for the Board, the sum of the squared differences between the economic weights and the political power of member countries would decrease from 0.103 to 0.095 as the euro area grows from 12 to 27 members (last column of Table A1). In other words, the overall country effect of the change in vote shares and relative economic size stemming from enlargement is to decrease the mismatch to some degree.²

	Assumed Board's Vote Share in Council		
	33.3 percent	18.2 Percent	0 percent
Euro Area With 12 Members	0.046 2/	0.069	0.103
Euro Area With 27 Members	0.042	0.063 3/	0.095

Sources: Eurostat: IFS; own calculations (based on 2001 data).

1/ Measured by the sum of the squared differences between them. Both weights sum up to 1.

2/ Reflects the status quo before enlargement.

3/ Reflects the EA27 scenario after enlargement in the absence of reform.

Board effect: To complete the picture, the role of the Board in Council decisionmaking needs to be taken into account. Assuming that the Board weighs each country's concerns by the country's economic weight—an assumption in line with the spirit of the Maastricht treaty—the Board's presence in the Council reduces the degree of over- and underrepresentation of member countries. Consequently, since enlargement, absent reform, will significantly reduce the Board's voting power in the Council, it will also increase the mismatch between the economic and the effective political weights of euro area member countries. Keeping the number of euro-area member countries constant, decreasing the Board's vote share from its pre-enlargement level of about 33 percent to its post-enlargement level of about 18 percent increases the sum of the

squared differences between the economic and political weights of member countries from 0.046 to 0.069 (first row of Table A1)—quite a substantial effect.

In all, absent reform, the *combined (country plus Board) effect* of enlargement under a bargaining framework would be to increase the mismatch between the economic and the effective political weights of country representatives in a bargaining framework. This is shown, for example, in Table A1 as the increase in the sum of the squared differences between the economic and political weights of member countries from 0.046 to 0.063, as the euro area expands from 12 to 27 members and the vote share of the fixed sized Board in the Council therefore decreases from about 33.3 percent to about 18.2 percent.

¹ To the extent that the Board takes into account euro-area wide concerns as opposed to concerns related to the country of the Board member, the effective political representation or bargaining power of member countries in the Council will differ from their pure vote shares.

² I am grateful to Daniel Gros for pointing out this possibility.

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