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Monetary policy and institutions in the EMU

Jürgen von Hagen*

Summary

This paper discusses the future performance of EMU monetary policy from an institutional perspective. Considering the ECB's policy environment, policy goals, strategies, instruments, and internal decision-making capacities, the discussion in this paper is organized as a comparison of two scenarios: a core and a large EMU. The core EMU will lead to a more credible commitment of the ECB to low inflation and less volatile monetary policy than the large EMU.

* *Professor of Economics at the University of Bonn, Director of the Center for European Integration Studies, and fellow of CEPR. His main fields of research are international macroeconomics, public finance and political economy.*

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From the beginning of the European Monetary Union (EMU), the European System of Central Banks (ESCB) will decide and implement EMU monetary policy. The ESCB will consist of the European Central Bank (ECB) and the national central banks (NCBs) of the participating member states.

According to articles 107 and 108 of the Treaty on EU (TEU), all participating NCBs must be independent of their national governments. The ECB, the leading institution of the system, will be governed by a Council and a Board. The former consists of the presidents of the NCBs and the Board members. The latter consists of the president, the vice president, and at least two other members, all appointed unanimously by the European Heads of Governments of the participating states upon a proposal by the European Council.

The ECB Council determines the EMU's monetary policy from the broader guidelines to the actual setting of central bank interest rates. The Board is responsible for implementing these decisions. To this end, it instructs the NCBs, which are to execute instructions by the Council and pertinent directives of the Board. Apart from that, the NCBs may execute other tasks in their responsibility and on their own account, unless the ECB Council rules that such activities are incompatible with the goals and tasks of the ESCB.

To emphasize the principle of *subsidiarity*, article 12 of the Statutes of the ESCB (Statutes) calls upon the ECB to charge the NCBs with the execution of all ECB business to the extent that this appears possible and justifiable.

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How will the ECB conduct monetary policy? To answer this question, it is useful to separate monetary policy making into these five areas:

1. The monetary policy environment.
2. The formulation of policy goals.
3. The choice of a monetary policy strategy.
4. The choice of monetary policy instruments to execute the strategy.
5. The politics of monetary policy decisions.

This paper discusses the monetary policy of a central bank not yet in existence. Such a task can only be highly speculative. While some perspectives can already be derived from the existing preparatory work done at the European Monetary Institute, others are wide open. So rather than providing definitive answers, the paper must develop and evaluate possible scenarios. These can be based on some important structural characteristics of the environment in which the ECB will operate. The environment can be characterized by the criteria of *optimum currency theory*, that is, by the importance of exchange-rate flexibility for a group of countries, and by the institutional framework of the ECB and by fiscal and external conditions. The discussion in Section 1 leads to two scenarios: a core EMU and a large EMU with different structural characteristics.

According to articles 105 of the TEU and 2 of the Statutes, the principal goal of ESCB monetary policy is to ensure price stability. This mandate is much stronger and narrower than the mandate of Germany's *Bundesbank* whose principle task, according to article 3 of its statutes, is to *safeguard the currency*. Among the national central banks in the EU, only the French and the Spanish ones have an equally narrow mandate.[1] Beyond its principal goal, the ESCB is to support the general economic policies in the Community to the extent that this does not compromise price stability.

Given its prominence as the goal of monetary policy, it is somewhat surprising that the TEU makes no effort to explain what price stability means. Such vagueness is common in central-bank legislation around the world (Goodhart and Vinals, 1994); only the Reserve Act of New Zealand gives a precise definition of the concept. So the ECB

[1] See EMI, *Annual Report for 1994*, Table 13.

will have to develop a suitable definition of price stability (see Section 2).

Once an operational goal has been formulated, a strategy must be devised to achieve it. A monetary policy strategy is a set of rules stipulating the short- and medium-term conduct of monetary policy. Article 12 (1) of the Statutes makes explicit reference to strategies by authorizing the ECB Council to make decisions regarding intermediate targets of monetary policy. But the Statutes do not preempt the choice of intermediate target.

Given the goals and the strategy, the ECB will have to vest itself with appropriate instruments. The choice of instruments relates mainly to the micro structure of the monetary union: the degree of centralization of central bank operations, the structure of the banking industry, and banking regulation and supervision. The Statutes provide a catalogue of possible instruments for the ECB, which is much less restrictive than, for example, the *Bundesbank* Act. By requiring the ESCB to "act in ways compatible with the principle of an open-market economy with free competition," article 105 of the TEU and article 2 of the Statutes rule out the use of interventionist instruments, such as quantitative credit allocations of the kind practiced in France until the early 1980s (Icard, 1994) or interest-rate regulation of the kind practiced in the U.S. until the 1970s. With that qualification, article 20 of the Statutes authorizes the ECB Council to decide on the use of any other instrument not mentioned explicitly in the Statutes.

Article 105 (2) of the TEU and article 3 of the Statutes commit the ESCB to promoting the "frictionless working of the payment systems" besides its principal goal of price stability. Furthermore, article 22 authorizes the ECB and the NCBs to provide arrangements and issue regulations to ensure efficient and reliable payment systems within the Community and in relation to outside countries. This suggests that the ECB may itself become involved with and possibly run the payment system for the EMU. If so, the ECB will probably also play a role in regulatory policies regarding the operation of the payment system.

Finally, the conduct of EMU monetary policy will depend on the political processes inside and surrounding the ECB. Special attention must be given to the fact that the ECB is made up of different national banks, which reflects different national monetary-policy preferences and constraints.

1. The ECB's monetary policy environment

The traditional economic perspective on monetary unions starts with *optimum currency area theory*. Given the large body of literature on the issue regarding Europe, this paper only briefly summarizes the main arguments. Next, it briefly reviews the institutional characteristics of the ECB, and then turns to the fiscal and the external environment of the ECB. Finally, the question of membership in the EMU is examined.

1.1. Economic heterogeneity

The theory of optimum currency areas has long discussed the role of economic heterogeneities for the feasibility and desirability of a monetary union.[2] While the use of a common means of transaction brings an efficiency gain, it also implies the loss of the nominal exchange rate as an adjustment mechanism to absorb asymmetric shocks between the member states. Assume that a shift occurs in the aggregate demand for output from the products of one country to the products of another. If the two have different currencies, the exchange rate of the depressed economy depreciates, which stimulates the demand for its exports and which dampens the recession there. Thus, a flexible exchange rate partially stabilizes the asymmetric shock. An analogous reasoning holds for shocks that hit the two countries symmetrically (for example, an oil price shock) but which are propagated in different ways through the economies due to differences in, for example, industry structures and labor market institutions. This is often overlooked, yet important, because the differences among national propagation mechanisms are empirically even more pronounced than the asymmetry of shocks (Demertzis et al., 1996).

Absent the exchange-rate channel of adjustment, the recession in the depressed economy will be deeper, and the more so the more rigid prices and wages are and the less effective other adjustment mechanisms are. With imperfectly flexible prices and wages, the main alternative market mechanism for adjustment is labor migration, which, however, is an inefficient response to transitory asymmetric shocks—particularly in Europe where moving costs are high. This leaves the possibility of fiscal transfers between the positively and the

[2] See De Grauwe (1994) for a review of this theory.

negatively affected member states through the budget of the central administration.

In the 1970s already, the MacDougall Report (1977) concluded that a Commission budget of seven percent of EC GDP would be necessary to provide satisfactory stabilization of asymmetric shocks in a monetary union among the members of the EC.[3] Two rounds of enlargements of the EU later, that figure would probably be a low estimate. Empirical studies, which estimate the characteristics of the EU as a currency area, generally conclude that asymmetric shocks among the EU states are much more important than asymmetric shocks among the member states of existing monetary unions.[4]

Beyond the traditional argument, note that the common currency implies a unified inflation rate. For countries with weak domestic monetary institutions, EMU promises a reduction in inflation by way of a credibility gain. But given the traditional differences in the priority of price stability in national economic policies, the differences in government debt ratios and the different designs of the national tax systems regarding price stability, one may safely assume that long-term differences in inflation rates reflect to some extent different national preferences regarding inflation. The fact that the monetary union cannot accommodate different inflation preferences indicates that agreement on a single inflation rate will be difficult and that some members may demand compensation for accepting a rate of inflation different from their preferred one.

Another, less noted type of asymmetry in the EMU concerns the structure of the national financial systems. Table 1 presents some relevant information. The currency ratio, the ratio of currency held by non-banks to demand deposits, indicates differences in the transaction technologies among the countries. Through the 1980s, this ratio declined drastically in all EU economies, reflecting the dissemination of non-cash payment technologies. Greece is the most cash-intensive economy in the 1990s among the EU states; Finland, Denmark, and the UK are the most advanced, followed by France and Italy. The Netherlands, Germany, Belgium, and Spain form an intermediate group. These differences are also reflected in the M1 money multipliers.

[3] See von Hagen and Hammond (1995, 1996) and European Economy (1992) for empirical studies of EU transfer schemes to deal with asymmetric shocks.

[4] See De Grauwe and Vanhaverbeke (1993), von Hagen and Neumann (1994), Bayoumi and Eichengreen (1994) and Demertzis et al (1996).

Table 1. Monetary data

	M1 multiplier		Currency ratio		M3/M1		Velocity 1990-94	
	80-84	90-94	80-84	90-94	80-84	90-94	m1	m3
Austria	1.23	1.52	0.98	0.78	5.8	6.4	7.1	1.1
Belgium	2.24	2.84	0.76	0.51	2.7	4.2	5.2	1.2
Denmark	6.05	5.41	0.17	0.11	2.3	2.0	3.2	1.6
Germany	1.70	2.16	0.53	0.43	3.5	2.9	4.3	1.5
Greece	0.9	1.02	2.06	1.59	3.7	3.6	6.1	1.7
Spain	1.54	2.25	0.44	0.53	3.1	2.6	3.4	1.3
France	4.30	5.17	0.21	0.19	3.7	3.6	4.2	1.2
Ireland	1.32	1.51	0.73	0.69	2.9	3.9	8.4	2.2
Italy	2.67	2.58	0.18	0.18	1.8	1.7	2.7	1.6
Netherlands	2.83	2.73	0.50	0.37	3.7	3.5	4.0	1.1
Portugal	1.45	1.61	0.53	0.26	2.5	2.8	3.5	1.2
Finland	1.89	3.00	0.36	0.12	5.5	3.0	5.1	1.7
Sweden	-	-	-	-	-	-	-	2.1
UK	3.11	10.1	0.38	0.08	2.7	2.4	2.5	1.0

Source: IMF, International Financial Statistics, various issues. Swedish data does not exist for these variables.

The ratio of broad money (M3) to narrow money (M1) illustrates another aspect of the financial system, namely, the importance of non-transaction bank deposits. It indicates the extent to which the public holds savings in the banking system rather than other assets, and the extent to which credit markets are securitized. Italy, the UK, and Denmark stand out as a group with a relatively low M3/M1 ratio, Germany, Portugal, and Spain form an intermediate group, while Austria, Belgium, France, Ireland, and the Netherlands are characterized by relatively large volumes of non-transaction deposits.

The last two columns of Table 1 show the average velocities of M1 and M3 in the early 1990s. It is interesting to note that the variation is more pronounced for the M1 velocities than the M3 velocities. For M3, two groups are identifiable. A low-velocity group consisting of the UK, Portugal, the Netherlands, France, Belgium, and Austria, and a high-velocity group consisting of Finland, Italy, Greece, Germany, and Denmark. Ireland is an outlier concerning M3 velocity.

All these observations point to significant differences between the financial sectors of the EU economies. A similar impression arises from the observation that European money-demand functions are characterized by significant structural differences (for example, Fase

and Winder, 1993), which appear to be much larger than, for example, regional money-demand functions in the U.S. (Arnold, 1996).

Because different financial structures are typically accompanied by different regulatory frameworks, this suggests that regulatory preferences will be rather different among the participants of the EMU. The initial phase of EMU is also likely to be characterized by substantial structural uncertainty, as the individual financial sectors will move into the EMU money markets from very different starting points. The ECB will, therefore, face much larger uncertainty about its monetary policy environment than the NCBs currently do.

1.2. Central bank independence and accountability

The independence of the ESCB has attracted much attention in the debate over the EMU and has been well documented. Legally, it is enshrined in the TEU and the Statutes. Article 107 of the TEU and article 7 of the Statutes rule that the ESCB may not take or seek instructions from EU institutions nor from member governments or other bodies. The same articles commit the EU institutions and the member governments to refraining from influencing the ESCB. The Treaty and the Statutes assure the ESCB's financial independence and its freedom to adopt monetary policy instruments and strategies. Personal independence of the ECB Board members and the NCB presidents is assured by relatively long terms of appointment with no possibility of renewal. The main limitation of the ESCB's independence stems from the European Council's jurisdiction regarding the exchange-rate regime. Comparative international analysis of central bank laws (Alesina and Grilli, 1992) shows that the ECB scores high on a ranking of central bank independence.

Like any large bureaucracy, a central bank—legally independent or not—has an interest in avoiding conflict with other political bodies (Issing, 1994b). As the example of the U.S. Federal Reserve System shows, even a legally independent central bank will yield to some extent to political pressures by the government or parliament (Havrilevsky, 1995). In this regard, the ECB's independence is strengthened by the fact that it does not face a single government nor a single parliament, which represents a political leadership with democratic legitimacy that could mobilize political pressure and public opinion.

Instead, the ECB will be faced with the European Parliament and the European Council, both of which represent national interests, and the European Commission which represents a (vaguely defined) Community interest. Pressures for easy money from one national government will often be offset by other governments insisting on monetary discipline. As a result, political pressures on the ECB will be weaker than those in a national environment.

The flipside of this argument is that, being the only supranational institution responsible for macroeconomic policies, the ECB will become the focus of public criticism and demands throughout the EMU in times of adverse macroeconomic performance, even if the underlying problems are neither caused nor curable by monetary policy. Thus, the ECB will find itself exposed to more frequent and aggressive public criticism of its policy than a national central bank. This will tend to reduce its political independence. The balance between these two opposing tendencies will largely depend on the ECB's own political wit in finding political allies for its monetary stance.

Independent national central banks are commonly accountable to their national parliaments. Formally, this is manifested in the fact that the central bank law is an act of parliament that can be revoked if the legislature is convinced that the central bank does not use its independent powers appropriately. In the U.S., Congressional oversight over the Federal Reserve System is also reflected in the regular hearings in which the Chairman of the Federal Reserve Board must testify before Congress.

Accountability of the ECB is a more complicated matter. Article 109b in the TEU and article 15 in the Statutes require the ECB to submit annual reports to the European Parliament, the Council, the Commission, and the European Council. Furthermore, the president and the other board members can be called before committees of the European Parliament. But the European Parliament itself is a rather powerless institution within the EU, and certainly not able to revoke the statutes, much less the existence, of the ECB. Because the statutes of the ECB are part of an international treaty, any change to its structure is politically cumbersome. Threatening the ECB to call it to order and pursue its mandate of price stability would take a joint effort of the Commission and a unanimous position in the European Council. This leaves the ECB with much weaker accountability than national central banks.

Recent literature argues that central bank accountability can be strengthened by tying the remuneration of the central bankers (or their reappointment into office) to their success in achieving low inflation.[5] The idea seems straightforward: like in any other principal-agent context, self-interested central bankers could be induced to promote the public good (low inflation) by making their salaries a negative function of the inflation rate.

In the same way as personal independence of the central banker complements the bank's institutional independence, an inflation-based salary contract would introduce an element of personal accountability to complement the institutional accountability reflected in the legal requirement to submit regular reports. In principle, such contracts could be offered to the ECB board members to make up for the weak institutional accountability of the bank.

But the desirability and the viability of inflation-based salary contracts remain doubtful. First, a salary contract depending on price stability would require a definition of price stability sufficiently precise to make the fulfillment of the contract testable in the courts. By specifying a detailed measure of inflation, a salary contract would create incentives for monetary policy to combat relative price changes that affect the chosen price index. Furthermore, the contract would have to define the time horizon over which price stability must be achieved. Suppose, then, that an oil price shock hits in the last year of a contract period. The central bankers would have a strong incentive to suppress all price-level effects of the shock that result in a much deeper recession than otherwise.

Public discontent with such a reaction would endanger the legitimacy of the central bank and hence its independence.[6] A counter-argument is that the government could retain the right of overriding the pecuniary penalty for excess inflation to avoid such situations. But this turns the problem back to the starting point: if the reason for creating an independent central bank with governors who are paid an inflation-dependent salary is that the government cannot be trusted in

[5] See, for example, Walsh (1995), Persson and Tabellini (1993) and Fratianni *et al.* (forthcoming). To some extent, this idea is reflected in the 1989 New Zealand Reserve Bank Act, which holds that the Reserve Bank governor may not be reappointed if the governor fails to meet a target inflation rate set by the government.

[6] Goodhart, in Goodhart and Vinals (1994) p. 27, reports that the New Zealand Treasury rejected the idea of an inflation-based salary for fear of headlines saying that "Governor make $500,000 by throwing 500,000 out of work".

monetary policy, such an escape clause would be counterproductive and probably misused.

A second, perhaps even more important argument against inflation-dependent salary contracts is that central banks, including the ECB, are responsible for things other than price stability, such as safeguarding the functioning of the payments system, where success is much less directly observable and measurable. Principal agent theory predicts that a contract rewarding an observable activity (price stability) induces the agent to invest more effort into this and less into the non-observed activities.[7] So one outcome of an inflation-based contract for the ECB board members could be excessive instability of the financial system in the EMU.

This leaves the individual members' threat to exit from the monetary union as the only channel of ECB accountability. Exiting from the monetary union would require a member state to reintroduce its own currency. Technically, this is not as hard as it might seem: the most difficult part in moving from one money to another concerns the conversion of old to new currency units, but the cost can be minimized by issuing the new national money initially at par with the euro.

Letting the new currency float against the euro afterwards would then give the national government its monetary autonomy back. This is not to suggest, of course, that such a step should be taken lightly. Trade and financial flows with other EMU states would likely be disrupted substantially for some time, making the cost of exit higher in the smaller EMU states. Realistically, exit can only be expected—if at all—from one of the larger members. Furthermore, there is no formal exit procedure in the TEU, and the exiting country would probably face a high political price for its action. This again makes exit of small member states unlikely. Given the monetary policy preferences in the EMU, this suggests that the possibility of exit will prevent the ECB from conducting monetary policies causing much higher and longer lasting inflation than the German public would be willing to tolerate. Nevertheless, Germany's strong political commitment to European integration means that this will hardly be a forceful constraint on the policy of the ECB in practice.

[7]See, for example, Holmstrom and Milgrom (1994).

1.3. The fiscal policy environment

One of the main restrictions on the possibility of national central banks to commit to policies of lasting price stability is the fiscal performance of their governments. It arises from the *intertemporal budget constraint* of the government, which says that, on a sustainable budgetary path through time, a government's accumulated budget deficits must be covered by budget surpluses of equivalent present value.[8] If this were not the case, a debt crisis would arise: markets would realize that the government will, at some point in the future, be unable to service its debt and demand increasing risk *premia*. Ultimately, the government's access to the credit market would be closed. Facing such a crisis, the government would then have to revert to the printing press to inflate part of its debt burden away. Anticipating such situations, central banks can come to the rescue of the government even before a crisis occurs. Such a bailout may take two forms. One is an ex-post bailout, in which the central bank becomes the residual buyer of all new government debt, so that deficits lead to excess money growth and, hence, inflation. The other is an ex-ante bailout, in which the central bank, through its monetary policy operations, keeps interest rates artificially low. Again, the result would be excess money growth and inflation.

The ECB's statutory commitment to price stability is not sufficient to exclude rescuing an over-indebted government. According to article 105(2) of the TEU and the Statutes, one of the ESCB's tasks is to promote the frictionless functioning of the payments system. Consider the possibility of a run on an EMU government's debt and assume that (as currently is the case) a large part of that debt is being held by the banking system, not necessarily only within the country concerned. Letting the profligate government face bankruptcy then amounts to allowing a significant part of the banking system to fail, with severe consequences also for banks that did not purchase much of the bad debt and disruptions in the payment system. In such a situation, rescuing the profligate government would take the form of sustaining the viability of the banking industry, and the ECB could justify this operation with reference to its statutory mandate.

[8] For a formal analysis, see Sargent and Wallace (1981).

The TEU has addressed this potential source of monetary instability in two prominent articles:

- The no-bailout clause of article 104b, which rules that neither the Community nor an individual member state shall assume the financial liabilities of any other member government
- The requirement to avoid excessive deficits of article 104c, which in conjunction with the Protocol on the Excessive Deficit Procedure (EDP) commits the member states to avoiding general government deficits above three percent of GDP and public debt in excess of 60 percent of GDP.

Germany's finance minister Waigel proposed that the members of the EMU should join in a *stability pact* that would commit the governments to deficits no larger than one percent of GDP in normal times and impose financial penalties on governments running deficits in excess of three percent. Responding to his demands, the December 1996 European Council in Dublin tightened the EDP by introducing some automaticity to the penalties and by clarifying the *exceptional* circumstances under which a country would still be allowed to run a deficit in excess of three percent (European Council, 1996).

At a first glance, the no-bailout provision alone should suffice to eliminate concerns that profligate fiscal policies create inflationary pressures in the EMU. With a strict no-bailout clause and no access to the printing press, a government faced with a debt crisis would have to rectify the situation quickly by raising taxes or cutting expenditures. This is, indeed, the case in the U.S., when state or local governments face a debt crisis.

If all member governments understand that a bailout is not an option, they will conduct more responsible policies in the first place and the situation will arise rarely. But there are reasons to assume that the EU will not stick to the bailout clause. The TEU defines the Union as a one of solidarity and coherence (Article A), which is committed to the convergence of the economies (Article B). It is easy to foresee a situation where a bailout from a debt crisis due to the profligate policies of past governments would be undertaken in the name of solidarity and convergence.

Thus, the combination of the no-bailout clause with the EDP reflects doubts on the credibility of the former (Eichengreen and von Hagen, 1995). But the effectiveness of the EDP is much in doubt,

too. The procedure laid out in the TEU seems much too complicated to be practical. Experience with numerical restrictions on government borrowing and debt in the U.S. and other countries show that they do not in the long run limit the growth of public debt. Instead, they induce substitution into unrestricted forms of borrowing through creative accounting.[9] The resulting loss of information about the government's financial status to the public weakens the government's democratic accountability and may make things worse rather than better. Furthermore, the EDP might create new problems for the ECB. A first problem is that ruling out deficits of more than three percent of GDP may prevent automatic fiscal stabilizers from working properly.

Table 2 shows that European government budgets, in which social transfer programs, which represent a large part, tend to show increasing deficits during recessions. Table 2 is a collection of observations from relatively large recessions in the member states since the early 1970s. It indicates that such swings in the fiscal position can be large relative to the three-percent limit.

Preventing automatic stabilizers from working properly would increase the amplitude of the European business cycle and this, in turn, would increase the demand for monetary policy action directed towards demand management. Alternatively, the governments would have to run deficits equal or close to zero in normal times to avoid excess deficits in recessions. This would ultimately make public finances dynamically inefficient and worsen the economic performance of the EMU. It is unlikely that national governments and voters would accept that outcome. If the public perceives that the rules of the EMU prevent the national governments from smoothing cyclical shocks, they will demand more active stabilization from the ECB. One effect of the EDP is, therefore, to expose the ECB to greater pressure for active demand management. Furthermore, the national governments will promote the installation of fiscal stabilization mechanisms at the EMU level.

[9] See von Hagen (1991).

Table 2. Cyclical swings in budget deficits

Country	Period	GDP growth	Change in total surplus as percent of GDP
Austria	1981	-0.3	-0.1
Belgium	1975	-1.5	-2.5
Belgium	1981	-1.0	-3.7
Denmark	1974-75	-1.6	-5.3
Germany	1982	-1.1	-0.5
Germany	1993	-1.2	-0.7
Greece	1974	-3.4	-1.4
Greece	1986	-0.5	-1.9
Spain	1993	-1.1	-3.3
France	1973-75	-0.2	-2.1
France	1993	-1.5	-2.1
Italy	1975	-2.7	-5.6
Netherlands	1981-82	-2.1	-3.0
Portugal	1975	-4.4	-5.0
Portugal	1993	-1.2	-3.8
Finland	1991-1993	-12.6	-13.6
Sweden	1977	-1.6	-2.1
Sweden	1991-93	-5.2	-12.3
UK	1973-75	-2.4	-4.0
UK	1991-92	-2.5	-4.6

Source: IMF, International Financial Statistics, various issues

The initiative for a European public works program launched by Commission President Santer in early 1996 and his willingness to take this to the European Summit against the protest of the national finance ministers signals that the Commission is all too ready for such activities.[10] As the member states would predictably be much more reluctant to transfer taxes to the Community than they would demand stabilization services from it, the result could be a tendency for increased deficits at the Union level.[11]

Similarly, the demand for tax smoothing and credit financing of public investment does not simply go away (nor lose its justification) when a limit on the permitted deficit is imposed. Empirical evidence

[10] See the *Wall Street Journal Europe*, 1 February 1996, 12 March 1996, and 21 March 1996.

[11] This is nicely documented in Mr. Chirac's strong support of President Santer's plan, which came without any indication that France would provide financing for a European public works program (*Wall Street Journal Europe*, 26 March 1996).

suggests that governments constrained in their borrowing powers will turn to the relevant higher-level authorities and ask them to borrow on their behalf. This is witnessed by the observation that central governments of countries, where the borrowing powers of subnational governments are legally constrained, tend to be more strongly exposed to high levels of public debt (von Hagen and Eichengreen, 1996).

For the EMU, this implies that strict application of the EDP (as amended in Dublin) will increase the demand for large borrowing activities by the Community. The current legal provision that the budget of the Commission must be balanced provides no counter-argument to this reasoning, because the EU can, and does already, borrow substantial amounts outside the regular budget.[12]

As an unwanted result of the EDP, the ECB may one day face a financially unstable Community rather than financially unstable member states. When that happens, it will be even harder for the ECB not to give in to demands for inflationary bailouts, because the Community itself does not have the taxing powers to solve the problem alone.

1.4. General economic policies in the Community?

Article 105 of the TEU requires the ESCB to support, without prejudice to the goal of price stability, the general economic policies in the Community—to contribute to the goals of the Community as defined in article 2. Among these goals are sustainable and non-inflationary growth and a high level of employment. Many commentators have seen the danger that this commitment might undermine the ESCB's commitment to price stability. Because the temporary growth and employment pay-offs from a monetary expansion are typically realized sooner than the permanent effects on the price level, they fear that, starting from a situation of price stability, the ECB could be pressured into easing monetary policy. In view of this danger, the declaration of the European Summit in Madrid in January that the "creation of jobs [be] the principal social, economic and political goal of the EU and its Member States" and that the European Council is "firmly determined to undertake all necessary efforts to reduce unemployment" would seem particularly worrisome.[13]

[12] For a review of the relevant legal provisions, see Harden and von Hagen (1995).
[13] European Council in Madrid (1996).

But such concerns seem rather unwarranted. First, the ESCB is not committed to supporting the economic policy *of* but rather the policy *in* the Community. This must be seen in conjunction with article 103 of the TEU, which implies that there are 16, possibly different, economic policies in the Community (Harden and von Hagen, 1996). The point is that the ECB is not called to support the economic policy of any particular body, be it the Commission, the European Council, or any other.[14] Thus, the ECB would not be committed by a declaration such as the one issued by the Madrid Summit.

Second, the call is to support the *general* economic policies in the Community. That is, the ECB would not be committed to support any specific action or economic policy program pursued by the EMU governments. Judging from the experience of the *Bundesbank*, which is subject to a similar clause in its statutes, the true function of this commitment is to limit the ECB's freedom to define its own economic policy agenda once price stability has been achieved: the ECB will not be allowed to embark on policies that would contradict the general goals of high employment and sustainable growth.

1.5. The external environment

Against the optimism of the Maastricht Conference, it is now increasingly clear that EMU will begin among a subgroup of the current EU member states. While Britain and Denmark have obtained formal opt-outs in the TEU, and Sweden may—despite the absence of such a clause—still choose to be outside, it is clear that not all of the remaining EU member states will be in the monetary union. Thus, the EMU will be surrounded by three groups of countries:

1. EU member states with clear aspirations to become members (*pre-ins*).
2. EU member states with no intention to become members (*outs*).
3. Non-EU states.

The prospective new EU members in Central and East Europe will have to decide whether they wish to belong to the *pre-ins* or the *outs*.

[14] The fact that the wording *in* versus *of* the Community was reportedly debated for some time in Maastricht indicates that the framers of the TEU understood the significance.

Regarding non-EU states, only a flexible exchange-rate regime can be appropriate. The EMU will be simply too large to surrender its monetary policy autonomy to some other central bank. The EMI's (1997) recent rejection of exchange-rate targeting as an option for the ECB confirms this view. But there remains some risk that the European Council, using its authority under article 109 of the TEU to issue general guidelines of exchange-rate policies, would coerce the ECB into some form of informal monetary policy coordination similar to G3 coordination in the 1980s. Ultimately, this would undermine the ECB's independence and weaken its commitment to price stability: even in Germany, G3 coordination marks the beginning of the reflation in the late 1980s (von Hagen, 1989).

Relationships with the groups of *pre-ins* and *outs* are more tricky. The long tradition of monetary policy coordination in the context of European integration, which goes back to the original Treaty of Rome, suggests that a *laissez-faire* approach is most unlikely.[15] This tradition builds on concerns that uncoordinated exchange-rate policies undermine free trade within the Community, as countries might be tempted to devalue their currencies deliberately—to gain temporary competitive advantages for their domestic producers, and that this could trigger retaliation with restrictive trade practices.[16]

Today, the fear that some non-participants in the EU might abuse their monetary independence by engaging in competitive devaluations is expressed most noticeably by France and Austria, although the factual basis of such fears remains in doubt. Note that the issue at stake is not exchange-rate volatility but rather the possibility of exchange-rate *misalignments*, that is, exchange rates that are vastly out of step with the underlying monetary and real fundamentals. Such misalignments can occur both with flexible exchange rates—see the large and protracted swings in the dollar between 1978 and 1985—and within an exchange-rate system—see the EMS after 1987, when the Italian lira depreciated against the German mark by 3.5 percent be-

[15] Article 109m of the TEU declares that the members states not participating in EMU will regard their exchange rate policies as a matter of common concern.

[16] See Eichengreen (1995) for an excellent review of the links between economic integration and exchange rate policies. In the EC, the French government in particular has been sensitive to this issue, as witnessed, for example, in its threat to break up European integration after the French franc crisis of 1969. The political disruptions stemming from exchange rate turmoil were important factors that lead to the concept of the EMU (Fratianni and von Hagen, 1992).

tween 1987 and 1991 with a cumulated inflation differential of 18.2 percent over the same period.

Since the Maastricht Treaty assumes the existence of an ERM system, one option is to go back to the pre-1993 system of narrow exchange-rate bands around central parities set by the finance ministers and supported by compulsory interventions of both the weak and the hard-currency central banks. Yet, there are serious objections against that. The experience of the ERM teaches that, with free capital mobility, narrow bands are exposed to speculative attacks if markets do not ascribe sufficient credibility to a central bank's ability or willingness to defend the current level of the exchange rate. Even a formal intervention obligation of the ECB would not be credible, because only an unlimited obligation to intervene could achieve that. That would compromise the ECB's commitment to price stability to an extent that would be regarded as intolerable. The only acceptable exchange-rate mechanism from the EMU's perspective would, therefore, be one that puts all responsibility for maintaining the parities on the non-EMU states.

To assure the stability of the renewed ERM, capital controls would have to be imposed to prevent speculative attacks . Although article 109i of the TEU allows such measures on a temporary basis, this would be unattractive, because it would undermine the credibility of the EU's commitment to free markets and leave the public with the impression that EMU means re-regulation of the financial markets. The reputational damage for the EU and the EMU, and the incentive for Europeans to move their savings to more liberal international environments should not be underestimated.

Another lesson from the ERM speaks clearly against vesting the finance ministers with the responsibility for realignments. Because some European governments tend to regard realignments as political defeats, central parities would become too rigid. This was most clearly experienced when, in the wake of German unification, the *Bundesbank* repeatedly asked for realignments in the ERM, but the governments could not be persuaded to take this step. To avoid undue inflexibility of the parities, an exchange-rate system needs a politically independent agenda setter for realignments.

At the same time, the non-participating EU states certainly have a strong economic reason to oppose fixed exchange rates with the EMU. Demertzis et al (1996) show that, with the pattern of shocks and differences in propagation mechanisms, an exchange-rate peg

between the core group and the rest of the EU risks to worsen the economic performance of the latter severely. Persson and Tabellini (1996b) emphasize that an exchange-rate peg would force the *pre-ins* and the *outs* to import the financial sector shocks expected in the initial phase EMU to their own economies. While this may seem a price worth paying for securing speedy accession to the EMU for the *pre-ins*, it will not for the *outs*. As a result, the latter will not accept an asymmetric exchange-rate arrangement that imposes no intervention duties on the ECB. But the ECB, in turn, will want to stay away from such duties, and will find strong support from the *Bundesbank* on this account. A more flexible solution must be found for the EMU—*outs* relations.

In sum, a viable relationship between the EMU and the two groups of the *pre-ins* and the *outs* must satisfy four important constraints:

1. The monetary relations between the EMU and the *outs* cannot be left unregulated.
2. The *pre-ins* will demand a perspective for their entry to EMU.
3. The UK has announced its unwillingness to participate in any form of exchange-rate system and other countries in this group will probably take a similar position.
4. The ESCB must not be forced to intervene in support of outside currencies since this would undermine its ability to deliver price stability and hence to gain credibility.

How can the requirements be fulfilled? An obvious approach is to treat the two groups differently to account for their different interests. Regarding the *pre-ins*, an arrangement must be devised that facilitates their entry to EMU. Regarding the *outs*, a framework must be found that gives sufficient content to the requirement of article 109m in the TEU, which calls upon the EU members with a derogation from EMU to regard their exchange-rate policies as a matter of common concern. This leads to a two-tier system of monetary relations within the EU, with a tight, asymmetric exchange-rate system between the EMU and the *pre-ins* and coordination on price stability between the EMU and the *outs*.[17]

[17] A similar system was first proposed by Fratianni and von Hagen (1992) for the original EMS.

1.6.1. EMS II: A solution for EMU aspirants

The EMS II, developed in detail in von Hagen and Neumann (1996), combines an asymmetric system of exchange-rate management with a strategy for accession to EMU. Hence it fulfills requirements 1, 2, and 4 in the previous list. Its main characteristics are in the box.

The EMS II

- Fixed but adjustable parities with the euro.
- All participants must have independent central banks.
- The ECB has the right of initiative for realignments for countries that do not meet the convergence criteria. If the European Council vetoes the ECB's proposal, the ECB has the right to publish its proposal.
- Exchange rates should not deviate more than 2.25 percent on each side of the central parity.
- The exchange rate band must have been kept for at least two years to qualify for entry into EMU.
- The ECB is not required to intervene in support of non-EMU currencies. However, the likelihood of supporting interventions increases with the extent to which a non-EMU *pre-in* fulfills the other three convergence criteria.
- A country fulfilling all convergence criteria is admitted to EMU on the basis of its prevailing central parity.

In this system, the exchange-rate bands are unilateral declarations of intent by the non-EMU central banks. This means that exchange rates can move outside the band, albeit at the price of postponing the central bank's accession to EMU. As long as speculators remain uncertain about the price a central bank is willing to pay for early access, this reduces the risk of speculative attacks substantially. Importantly, this makes the exchange-rate system compatible with free-capital mobility. With fixed and adjustable parities and a narrow exchange-rate band, the danger of competitive devaluations is eliminated. In fact, the ECB has an incentive to propose a realignment for a misaligned currency to maintain an orderly euro market. The ECB's right of ini-

tiative assures that central parities will not be politicized and become too rigid as in the last phase of the EMS.

At the same time, the EMS II sets clear conditions for access to the EMU, which satisfies the demands of the *pre-ins*. Once a country comes very close to meeting the entry criteria, the ECB will find it easier to intervene in support of its currency. This justifies an intervention strategy conditional on the achievement regarding the entry criteria.

Since the time of writing this paper, the European Council in Dublin has adopted an ERM II that comes very close to our proposed arrangement. The ERM II will likely have bands as wide as the current ERM, while central bank intervention will be, in principle, automatic. The ECB will be allowed to abstain from interventions if doing so risks to endanger its goal of price stability. Furthermore, the ECB will have the right to ask for a revision of the prevailing central rates. The Council also expressed the view that the *pre-ins* will have to be in the ERM II, with no realignment for at least two years before joining the EMU (European Council, 1996).

1.6.2. Coordination on price stability: A solution for by-standers

If exchange-rate targeting is too unattractive for the EMU and the *outs,* a more appealing alternative is to coordinate monetary policy by coordinating its goals, that is, the desired rate of inflation. Coordinating monetary policy in this way was proposed first in Dewatripont et al. (1995) and has become the favored solution of the UK government. In essence, each *out* and the ECB would announce a desired inflation rate. The exchange rate against the euro would then be evaluated based on the difference between the inflation targets. This would provide a yardstick for identifying competitive devaluations. If real devaluations occur for other economic reasons, such as changes in relative productivities, the government concerned would have to explain and justify this development. The multilateral surveillance procedure under article 103 provides the proper institutional framework for such coordination.

This proposal has several advantages:

- It avoids the problem of speculative attacks altogether.
- It contains no asymmetries, because each *out* and the EMU would be free to pick its preferred inflation rate.

- It contains no intervention requirement for the ECB. So it does not undermine the ECB's credibility.

One obvious question is whether the ECB should be forced to announce an inflation target. Indeed, the following argument shows that inflation targeting is not a proper monetary strategy for the ECB. But the ECB should aim unconditionally at an inflation rate between zero and two percent. If the ECB announces this goal, the *outs'* central banks would be free to set their inflation targets around this norm, and the ECB would become the leader of the system.

1.7. Membership in EMU

Before the ECB's monetary policy can be evaluated in the environment described so far, the central question is who the members of the EMU will be. According to the TEU, this question will be settled by the European Council of the Heads of State—upon a recommendation by the European Council—based on reports from the Commission and the European Monetary Institute and a recommendation by the Commission. The Council of the Heads of State will decide by qualified majority which member countries fulfill the requirements for EMU. Probably, this decision will be made in early 1998.

Today, it is common knowledge that the EU contains a core group of countries that are ready for the EMU. Apart from Germany and France, without whom EMU is unlikely, this group contains the Netherlands, Luxembourg, Ireland, and, although they do not meet the debt criterion, Belgium and Austria.

The relatively high degree of economic convergence among these countries and their similar inflation performance since the mid-1980s suggest that this group would come close to fulfilling three key conditions for the start of EMU:

1. A similar preference for price stability.
2. Limited importance of asymmetric shocks.
3. Limited structural uncertainty at the start of EMU.

But neither Germany nor France is likely to meet the deficit criterion by 1997. Germany, in addition, may well violate the debt criterion.

Despite the lip service of European politicians to a *hard* interpretation of the entry requirements, this means that they will have to be interpreted with some leeway, because dropping or postponing the

project is politically too unattractive for the French and German governments to be a realistic possibility. Because some of those countries that violate the entry requirements would like to be EMU members, the question then is how flexible the interpretation of the criteria will be.

European Council decisions require a qualified majority of 62 votes in a total of 87. Because the core group alone has a total of 39 votes, it must seek a coalition with other EU members. It seems likely that the UK and the Scandinavian countries would vote in favor of a stability-oriented, low-uncertainty core group, particularly if Sweden, Finland, and Denmark expect to join EMU soon. But this group only contributes another 20 votes, so that the core group and its coalition are still three votes short.

One possible outcome is that Greece, which has five votes in the Council, votes in favor of the core. But it seems at least as likely that Greece will cast its vote together with the other southern European states.

Portugal (five votes) could support the core group, although this would put it in opposition to Spain, which would wish to join. If Portugal votes according to its larger neighbor, this gives either Italy (ten votes) or Spain (eight votes) the pivotal position.

Two scenarios arise from these calculations:

1. The *core-EMU* scenario assumes that either Portugal supports the core against Spanish opposition or Italy and Spain accept the core group's interest in starting EMU among themselves.
2. The alternative, *large-EMU* scenario assumes that either Spain or Spain and Italy will insist on their EMU membership and Portugal will support their claim. Here, the core group will have to compromise with the southern Europeans.

It is hard to imagine that Italy (one of the original six EC members) is left out and Spain and Portugal are admitted. But the case to admit Italy and keep out Spain and Portugal, although they score much better on the entry criteria, would also be hard to argue. Thus, a compromise would have to be found. A plausible compromise scenario would then be to include Spain and Portugal immediately and ask Italy to wait until the physical introduction of the euro currency. This would give Italy an extra waiting period until January 2002.

The *large-EMU* scenario is also suggested by another line of reasoning. French, Belgian, and Austrian policymakers today emphasize

the importance of including the southern European states to prevent them from engaging in competitive devaluations. The same argument is also voiced among German business representatives. The large EMU would also be attractive to the Kohl government for foreign policy considerations. It is conceivable, therefore, that shortly before the Council decision, French and German policymakers would confront their domestic public with these alternatives:

- A small, surely stability-oriented EMU losing jobs to outsiders.
- A large, possibly less stability-oriented EMU with higher employment.

Because unemployment is the most pressing economic problem in these economies today, it is entirely possible that the public could be persuaded to accept the *large-EMU* scenario.

1.8. Conclusions on the monetary environment of the ECB

The monetary policy environment of the ECB is characterized by a large degree of heterogeneity among the member states and by large structural uncertainties at the start of EMU. The ECB is largely independent yet also non-accountable. Due to its position as the only truly European macroeconomic policy institution, it will become the focus of public criticism in times of macroeconomic disturbances and will face a strong demand for stabilization.

Despite the no-bailout clause and the Excessive Deficit Procedure in the TEU, one cannot exclude that the ECB will be pressured to inflate away high public debts and that it responds to such pressures.

The design of its external relations must consider the demands of other EU states to join EMU at a later stage. The ERM II adopted by the European Council in December 1996 can serve that purpose, although a more appropriate solution would have been desirable.

Membership projections lead to two scenarios, a *core EMU* and a *large EMU*, which would put the ESCB into very different policy environments. In the *core-EMU* scenario, the ECB would face a public with a stronger preference for price stability, governments with lower public debts, and more limited heterogeneity of the member economies than in the *large-EMU* scenario.

The public's demand for macroeconomic management would be larger in the *large-EMU* scenario. On the other hand, the ECB's monetary policy independence would be more restricted by the need

to accommodate the interests of the *pre-ins* in the *core-EMU* scenario. These scenarios are used to evaluate the policy questions in the next section.

2. Price stability in the EMU

Two questions related to the ECB's policy goals are discussed in this section: the proper definition of price stability and how the ECB can gain the credibility that enables it to pursue this goal adequately.

2.1. The concept of price stability

Neither the TEU nor the ESCB Statutes gives an operational definition of what price stability means. Both concepts, the price level and its stability need clarification. In a national economy, the price level is defined as the average price of a commodity basket reflecting the production structure or the consumption habits of the economy. The mandate to maintain price stability obliges the central bank to define a composite good and to use monetary policy to target its price, that is, to react to shocks changing the price of this good.

2.1.1. Aggregate versus regional price stability

Price stability does not mean that all prices should be stable. In particular, it does not preclude regional relative price changes (that is, real exchange-rate changes between the member states of the EMU) nor changes in the prices of other composite goods. Whether or not price stability holds in any given period depends on the underlying price index used. In Austria, for example, wholesale prices were virtually constant between 1990 and 1994, while the consumer price index rose by 15 percent. The implication is that an individual, whose consumption structure is similar to the commodity basket of the wholesale price index, experienced price stability, while an individual whose consumption structure is closer to the CPI basket, experienced sizeable inflation. In the U.S., the CPI in the Northeast rose by 31.5 percent between 1985 and 1991, but only by 24 percent in the South. Because nominal incomes such as pensions are adjusted—based on the national CPI, these differences imply a real income loss for the Northeast and a gain for the South.

The difficulties with defining a proper EMU price level increase with the heterogeneity of the member economies. The more different

the consumption patterns in the member states, the greater the risk that the ECB will eventually target the price of a commodity basket that is not representative for the consumption habits in any member state.

The implication is that consumers may experience frequent and sizeable movements in the price levels relevant to them, even though the price level of the EMU is held constant. In addition, national governments would most likely use national price levels to index nominal incomes such as pensions, so that the public would continue to focus its expectations on national rather than on EMU price level movements.

All of this means that the concept of price stability would become vague in the EMU and that the ECB would find it difficult to gain credibility and justify its monetary policy: rising interest rates to contain EMU inflation would be regarded as an inappropriately tight policy in regions with constant or declining prices, while the public elsewhere would complain about inappropriately loose monetary policy. Obviously, this would be more likely in the *large-EMU* than in the *core-EMU* scenario. One might argue that the ECB could avoid such difficulties by targeting the price of tradeables in the EMU, because commodity arbitrage would quickly eliminate differences in national price movements.[18] But taking nontradeables out of the price index would make that concept of price stability equally vague and provide no remedy, because non-tradeables are an important part of the private consumption baskets.

2.1.2. Price-level stability versus zero inflation

An important distinction must be made between *price-level* stability and a *low inflation rate.* The economist's definition of inflation is the long-run growth rate of the price level. It is determined by the trend growth of the money supply relative to growth of potential output. Absence of inflation does not rule out—even sizeable—discrete shifts in the price level that may result from changes in indirect taxes, aggressive wage policies, or a raw materials price shock.

In contrast, a mandate to maintain price-level stability forces monetary policy to counteract discrete shifts in the price level caused by non-monetary disturbances. Such reactions tend to increase the

[18]Thygesen (1990) suggests a value-added deflator of tradeables in the EMU as a measure of price stability.

variance of output and employment relative to a policy of low inflation. This does not mean that a central bank that pursues price-level stability is *per se* more ambitious in its pursuit of price stability. In fact, the opposite is quite likely.

A monetary policy that amplifies output and employment volatility will trigger and exacerbate political conflicts between the central bank and the fiscal authorities and between the central bank and the social partners. Pursuing price-level stability, therefore, exposes the central bank to more public criticism than pursuing low inflation. Because central banks shy away from such confrontations, increasing public criticism reduces their ambition to achieve price stability. As a result, a central bank that interprets price stability as price-level stability is likely ultimately to pay less attention to its mandate than a central bank pursuing low inflation.

The distinction between price-level stability and low inflation is clearly visible in *Bundesbank* monetary policy. For example, the July 1991 Monthly Report argues (p. 17) that "the *Bundesbank* cannot prevent the price increase caused by the rise in consumption taxes at mid-year. This increase will be on the order of one half of a percent."

The *Bundesbank* classifies this effect as a singular event, implying that it should not be combated by monetary policy. Similarly, the 1992 Annual Report (p. 26) identifies increasing taxes and public-sector user fees as a main cause for the four percent upward shift in the price level, again implying that the *Bundesbank* should not get in the way of the government's claim on resources from the private sector.

The ECB's mandate for price stability can only be reasonably interpreted as a mandate for low inflation. Following the example of the *Bundesbank*, this would mean a long-run growth rate of the price level not exceeding two percent. This is sufficient to allow for measurement errors and price effects of quality improvement in the underlying goods and services.

Even if the low-inflation interpretation is recognized as the more appropriate one, sticking to it meets some practical difficulties. Because prices adjust slowly to shocks, the public will often find it difficult to distinguish a shift in the price level from rising inflation, because both initially show up as an increase of the rate of price change. Given the uncertainty about the true nature of the observed acceleration and about the central bank's true intentions, the public will, to

some extent, interpret such accelerations as a sign of higher inflation. This will trigger further price increases and wage demands.[19]

To contain the risk of an expectations-driven inflationary bout, the central bank will then find it necessary to conduct a more restrictive policy than if the public fully understood the situation. The less established the central bank's reputation for keeping inflation low and the more it lacks a plausible framework for separating monetary and other impulses on the price level, the stronger the tendency for a monetary contraction in response to price-level shocks will be.

The *Bundesbank's* policy after the German unification illustrates the point (von Hagen, 1995a). Adjustment to the large fiscal shock in Germany, combined with fixed exchange rates, required an upward shift in the German price level. In view of the incipient acceleration of the price level, the *Bundesbank* explained in its Annual Report for 1991 that "beyond the impact effects (of the rise in VAT), a cumulative process of price and wage increases must not begin" (p. 31). In the Monthly Report for February 1991, the *Bundesbank* states that "monetary policy has the task of ensuring that the price increases resulting from tax increases do not continue in an inflationary process" (p. 8) and that the "*Bundesbank* must do everything possible within its means to assure that the current tendency for rising prices does not form the basis for permanently higher inflation expectations" (p. 9).

These quotes show that the *Bundesbank* did not count the initial shift in the price level as inflation nor as a reason for monetary policy to react. But it did fear that the observation of protracted price rises might trigger a spiral of higher inflation expectations and higher prices and wages. This fear became the basis for its restrictive policy reaction. As a result, the *Bundesbank's* reaction to the shocks was too contractionary relative to the goal of maintaining a constant trend inflation rate (von Hagen, 1995a).

For the ECB, the tendency to respond to price level shifts with monetary contractions will be even more pronounced given that it will lack the reputation of the *Bundesbank*. It will be stronger in the *large-EMU* scenario than in the *core-EMU* scenario, because the public's doubts about the commitment to low inflation will be greater if the ECB Council includes representatives from countries with less stringent low-inflation preferences. Thus output and employment re-

[19] Brunner et al. (1983) and Cukierman and Meltzer (1986) explain how such expectations effects arise under the assumption of rational expectations.

sponses to fiscal shocks, wage shocks, or raw materials price shocks will be more strongly negative in the EMU than with credible national monetary policies, and more so in the *large-EMU* scenario.

2.1.3. Inflation targets versus a price norm

The time dimension of price stability is a further important aspect. Currently, central banks express their commitment to price stability in two ways: as an inflation target or as a price norm. The *Bundesbank* has used a price norm since the early 1980s. Inflation targets were first adopted by New Zealand in 1989. Canada followed in 1991, the UK and Israel in 1992, and Sweden and Finland in 1993.[20]

Inflation targets have also gained relevance with the British proposal that the ECB should adopt this practice. An inflation target is an announcement of a desired rate of price increase to be achieved at a specific time, say, two years after the announcement.

In contrast, a price norm is a declaration that the price level should not, on average, over a long but unspecified time period, rise faster than at a desired rate. The difference between an inflation target and a price norm is two-fold:

1. An inflation target varies over time and is conditional on current economic developments, while a price norm is constant and unconditional.
2. An inflation target is defined for a specific time horizon, while a price norm is defined to hold, on average, over a long, yet unspecified period.

An inflation target commits the central bank to achieving a certain observed rate of price increase within a certain period. It does not allow any distinction between price-level movements caused by monetary policy and other price-level shifts. This makes inflation targets conceptually more closely related to the concept of price-level stability rather than low inflation, with the consequences for the central bank's ambition and effort to achieve price stability previously discussed.

To avoid macroeconomic disturbances resulting from conflicts between monetary and fiscal policy, inflation targets must be coordinated between the monetary and the fiscal authorities. This explains why inflation targeting prevails in countries where central banks are

[20]See the contributions in Leiderman and Svensson (1995) for detailed accounts.

not independent. For the ECB, such coordination would institutionally only be possible with the ECOFIN Council. But this would result in a violation of article 107 of the TEU. Thus, ECB inflation targets would have to be unilateral declarations. They would lead to more conflicts between monetary and fiscal policies in the EMU than we currently observe in countries that use inflation targets.

To avoid conflicts between the monetary and other spheres of economic policy, inflation targets have been formulated in practice with escape clauses (New Zealand) and based on *adjusted* price indexes (New Zealand and UK), where the adjustment takes out certain sensitive prices such as housing prices. But it is questionable whether all relevant sources of price-level shifts can be isolated in this way. Beyond that, the use of adjusted price indexes creates the impression that the central bank does not take its commitment to price stability sufficiently serious. As a result credibility will be low.

As long as both are around one or two percent, the difference between an inflation target and a price norm is obviously negligible. But the distinction becomes relevant in the face of large shocks that cause the price level to shift upward by a considerable amount. A central bank that pursues a price norm would continue to announce its goal of no more than two-percent, trend-price growth and would face the necessity *ex post* to explain why prices rose faster for a while. But the conditional nature of the target implies that a central bank with an inflation target would react with a rise in its target rate shortly after a shock has hit and would explain to the public *ex ante* why this happens.[21] An *ex post* justification has the advantage of more information being available, but it allows larger expectation errors. Which alternative is better to maintain credibility of the commitment to price stability cannot be judged theoretically.

More importantly, central banks do not simply face shocks in the sense of natural events, as suggested by the theoretical literature. Instead, demand and supply shocks are the result of rational economic actions in other spheres of the economy and of economic policy, most prominently fiscal and wage policies. A rise in the inflation target will signal to decision makers in those sectors the extent to which

[21] The models of inflation targeting proposed by Persson and Tabellini (1993) and Svensson (1996) have this property. Empirical experience in Israel illustrates this point in practice (Bufman et al., 1995). Also found in the practice of Australian inflation targets. In the UK, the use of a corridor to express the inflation target was chosen to leave room for reactions of the target to macroeconomic shocks.

the central bank stands ready to accommodate the level effects of their actions. The more accommodation the central bank signals, that is, the more it lifts its inflation target, the less the other actors are forced to consider the macroeconomic consequences of their policies.[22]

A similar argument holds for a situation when unions are willing to exert wage restraint to improve employment. Unions will regard a reduction in the inflation target after reduced wage demands as a punishment for cooperative behavior, because real wages will fall less than expected and a given reduction in unemployment will require even larger, politically difficult nominal wage concessions. Anticipating this lowers the unions' willingness to make such concessions in the first place. A similar argument holds regarding fiscal restraint.

Thus, the conditionality of inflation targets on positive and negative fiscal and wage shocks reduces the incentives for macroeconomic discipline in the non-monetary sectors of economic policy, which makes shocks from these sectors more frequent and larger. This implies that the inflation target will, on average, be higher than what is compatible with price stability. A price norm avoids such problems, because it contains no signals of monetary reactions to other economic policy actors. Furthermore, such a norm has the advantage that the central bank will find it easier to communicate the price-level effects of misguided fiscal and wage policies to the public. The ECB's commitment to price stability would be better demonstrated by adopting a price norm rather than an inflation target.

2.2. Can the ECB be credible?

Recent analysis of the time-consistency problem of monetary policy stresses the importance of credibility of the central bank's commitment to price stability as a precondition to achieve low inflation.[23] Suppose the central bank has announced a monetary policy conducive to zero inflation. If wage setters and lenders in the capital market believe this announcement, they will set nominal wages and demand nominal interest rates accordingly. But once such nominal contracts have been fixed, the central bank has the opportunity to create higher

[22] It is interesting to note in this context that, after the oil price shocks of the 1970s, *Bundesbank* for several years announced *unavoidable inflation rates* above its price norm. In its reaction to external shocks, *Bundesbank* presumably regarded the signaling effect less important than in its reaction to domestic wage and fiscal shocks.

[23] Barro and Gordon (1983) and Barro (1983) presented the original arguments.

than expected inflation. The resulting cut in real wages leads to an increase in employment, and the real depreciation of nominal government debt reduces the government's debt service obligations.[24] *Thus , if it is in the central bank's interest* to raise output and employment and reduce the government's real-debt service, it has an incentive to surprise the private sector with positive inflation.

The private sector will rationally anticipate this and hence expect a positive rate of inflation regardless of the central bank's announcement. The time-consistent equilibrium is characterized by an inflation rate large enough to eliminate the central bank's incentive for surprise inflation. This equilibrium is an undesirable one for all parties, because inflation is positive but no employment or debt-service gain is achieved.

The question is, of course, why would the central bank *want* to produce surprise inflation. The answers proposed in the literature focus on political economy: improving the incumbent government's reelection chances by raising employment (Rogoff and Siebert, 1988; Fratianni et al., forthcoming), lowering an excessive debt-service burden (Barro, 1983), or changing the distribution of the tax burden (von Hagen and Süppel, 1994) . All these arguments rest on the assumption that the central bank has an interest in promoting the government's political fate. This line of reasoning leads directly to the conclusion that political independence of the central bank is essential to make its announcement of a low-inflation policy credible. With the relatively good performance of Germany's independent *Bundesbank*, this has provided the background for the independence of the ESCB provided in the TEU.

But an important fallacy exists in much of the literature drawing normative conclusions from the time-consistency-credibility argument.[25] It is one thing to use the argument for positive analysis that explains why some central banks produced more inflation than others in the past. It is another thing to argue that independent central banks *will* produce less inflation than dependent central banks. After all, central bank independence only means that central bank policy is not constrained by the political interests of the government; there is still nothing that forces the central bank not to act in the government's short-term political interest. In fact, the empirical evidence produced

[24]This assumes that the maturity of public debt is sufficiently long term.
[25] For a similar point, see McCallum (1995).

to support the claim that central bank independence leads to lower inflation remains quite weak.[26] Predicting the credibility of a low-inflation policy in the EMU needs more than the legalistic concept of central bank independence.

Against the paradigm of a utility-maximizing central banker of the type commonly modeled in the time-consistency literature—one who cares about inflation and deviations of output from some fixed target level—Milton Friedman holds the paradigm of a central banker in whose utility function "by and far the two most important variables ... are avoiding accountability on the one hand and achieving public prestige on the other."[27]

Obviously, these two paradigms are in no contradiction: the utility function commonly used in the literature may reflect the ways how central bankers perceive to win public prestige. Yet, Friedman's paradigm is the more general one and it can help us predict the behavior of the future ECB central bankers. As argued above, accountability is extremely weak for the ECB; thus it is of no concern to the members of the ECB Council. The important motivation for the Council members, then, is their wish to gain public prestige. For the directors of an institution with a functional mandate such as monetary policy, the most important way to gain public prestige is to achieve the image of expertise: public prestige comes with the reputation that the central bank delivers what the public expects from it.

This leads us right to the heart of the matter: if the EMU public truly values price stability highly, the best way to achieve prestige is for the central bank to announce and pursue a policy strictly committed to price stability. But if the public does not value price stability highly, the ECB's incentive to win prestige by showing a firm commitment to price stability will be much weaker, consequently, it will not be able to gain credibility easily. Central-bank independence is but a necessary condition to allow the central bankers to pursue their own interest.

[26] See, for example, Giovannini (1992). Apart from the obvious limitations of law-based rather than real performance-based measurements of independence, the existing indices of independence have no clear theoretical foundation. This criticism does not even touch on the important possibility that countries with a preference for low inflation may prefer more independent central banks, so that central bank independence is but a outflow of inflation preferences.

[27] This is quoted from Fischer (1990), p. 1181 n. 52.

Thus, the extent to which the ECB will be committed to price stability ultimately depends on the composition of the EMU itself. In the *core-EMU* scenario, there is reason to expect that a majority of the EMU public would regard price stability as the principal responsibility of the ECB. In that scenario, the ECB Council would want to gain prestige by delivering price stability. Given this incentive, its announcement of a low-inflation policy would be credible. Nevertheless, it is important to keep in mind that the ECB would also be the only macroeconomic policy institution at the EMU level. Even in a small EMU, it would face a larger demand for discretionary monetary stabilization policies than, say, the current *Bundesbank*, which in the eyes of the public shares responsibility for macroeconomic stabilization with the federal government.

Skillful stabilization will, therefore, be a much larger element in the EMU public's appreciation of expertise than it would, if there was a fiscal authority providing stabilization at the EMU level. Thus, one may expect that the ECB would engage more strongly in activist management of the EMU economy than the *Bundesbank,* and this will ultimately result in more volatile monetary policy and a stronger inflation bias.

In the *large EMU*, in contrast, the ECB would face a public whose appreciation for price stability would be considerably weaker. In that scenario, the ECB would want to deliver something else to win prestige with the EMU public. Most likely, this something else would be monetary activism in an effort to control the EMU business cycle and achieve a high level of employment. The ECB would then have a much stronger incentive to conduct discretionary monetary policy more oriented toward short-run demand management. Wage setters and lenders in the capital markets would respond by keeping their inflation expectations high and force the ECB into an undesirable equilibrium with a relatively strong inflation bias. In sum, whether or not the ECB's commitment to low inflation is sufficiently credible depends largely on what the public expects a competent central bank to do, and this cannot be seen independently from the membership question.

2.3. Conclusion on price stability

The TEU emphasizes price stability but provides no operational definition of this term. In a monetary union of heterogeneous countries, regional differences in price developments cannot be excluded. The

larger the EMU, the greater the danger that the concept of price stability becomes vague for the public, as regional price movements blur the underlying, low inflation rate in the union as a whole.

The ECB will have a choice between formulating a price norm and an inflation target as its principal goal. Inflation targets are conceptually closer to the concept of price-level stability, exposing the central bank to more public criticism and demanding close coordination with fiscal authorities.

For the ECB, only a price norm can be appropriate. The credibility of its commitment to such a norm will depend critically on the size of the union and the heterogeneity of its members; it will be larger in the *core EMU* than in the *large EMU*.

As a nascent institution, the ECB will face the additional problem that the public will initially be uncertain about the central bankers' true preferences. This will give the ECB an incentive to build a reputation for being strongly committed to low-inflation policies very fast, the more so, the more it expects that such a reputation conveys prestige.

The literature on central-bank reputation (Backus and Driffill, 1985) suggests that the ECB would initially try to back up its announcement of low inflation with very visible policy actions. Thus, the early phase of EMU would be characterized by a relatively tight monetary policy, one that would forego opportunities for macroeconomic stabilization even if it were appropriate, as in the case of negative supply shocks. The *large-EMU* scenario has less to fear from such considerations, because the ECB would probably wish to establish a reputation for skillful demand management rather than low inflation in a *large EMU*, and this would add to its inflation bias rather than cause a deflationary start of the EMU.

But even for the *core EMU,* the argument may be weaker than it seems at a first glance. On the one hand, it overlooks the importance of persistence in unemployment. Drazen and Masson (1994) show that, if persistence is important, being tough today may increase the public's perceived probability of surprise inflation tomorrow, that is, damage the central bank's credibility. The reason is that the high unemployment created or tolerated by restrictive monetary policy today increases the perceived payoff from loose monetary tomorrow.

The large degree of *hysteresis* in European unemployment suggests that such considerations would be important for the ECB. On the other hand, the theoretical models used to analyze central-bank

reputation assume that tough action is the only signal available to the central bank. In practice, the ECB will have other ways to signal its true preferences regarding price stability. Among these, formulating a price norm backed up by a consistent monetary policy strategy are probably of prime importance.

3. Monetary strategies for the ECB

A monetary strategy is a set of rules specifying what the central bank does in the short and medium run to achieve its long-run goal of price stability. Strategies are important because the link between the central bank's instruments and its ultimate target, the inflation rate, is characterized by large uncertainties—*long and variable lags*— as Milton Friedman put it. These uncertainties, together with the significant observation lag for the price level, make a direct control of the inflation rate extremely complex. A monetary strategy focuses on the link between the daily central bank operations and the achievement of price stability with the purpose of reducing control uncertainty.

In all industrial countries, it has long become practice to use the central bank's instruments in the very short run (daily or weekly) to smooth fluctuations in the short-run money market rate. Day-to-day or even week-to-week control of monetary aggregates (the monetary base or bank reserves) is not applied for fear of large swings in money market rates. The attempt to smooth fluctuations in the money market rate is commonly justified by the central bank's mandate to promote a frictionless functioning of the payment system (Wellinck, 1994). Furthermore, central banks often wish to signal changes in the intended course of monetary policy through short-term interest rate movements; with large volatility of money market rates, such signals would be much harder to detect for the public.

The preparatory work of the EMI suggests that the ECB will follow the practice of smoothing short-term rates (EMI, 1996). This reduces the strategy issue to the question of how the control of money market rates should be guided over a time horizon from a few weeks to several months, that is, what the intermediate target variable of ECB monetary policy should be. Two alternatives are currently being debated, the British proposal of targeting an inflation forecast and *Bundesbank's* practice of a monetary target.

3.1. Intermediate target strategies

The characteristic of an intermediate target strategy is that, over a time horizon that roughly matches the average lag between the changes in the central-bank instruments and changes in the price level, the central bank's short-run operations are focused on the development of a variable, which is different from the rate of inflation, that is, the intermediate target.

An intermediate target strategy is based on three key assumptions:

1. The intermediate target must be reliably controllable.
2. There must be a predictable relationship between the intermediate target and the rate of inflation.
3. The intermediate target strategy must be able to affect the expectations of the public and other agents.

The first two conditions have been widely discussed in the literature.[28] In contrast, the third condition is often overlooked, although it plays an important role in practice. For example, the *Bundesbank's* choice of a monetary target in 1974 was explicitly motivated by the intention to reduce inflation expectations to lower the cost of disinflation, to signal to wage setters and fiscal policymakers that the *Bundesbank* would not accommodate expansionary shocks from these sectors, and to demonstrate to the public that the *Bundesbank* wanted to confine monetary inflation impulses.[29] Here, a monetary target has the advantage of being easy to communicate to the public. The basic relation that inflation equals the difference between the trend growth rates of money and output is easily understood. It makes it possible to derive the monetary target in a simple way by adding the intended price norm to the trend growth rate of output, the central bank's prediction of which can be checked against the *objective* forecast supplied by the independent Council of Economic Advisors.[30] Compared to this, the Bank of England's inflation forecast is much more complex and harder to understand.

A first objection against the use of a monetary target is that a monetary policy geared strictly to the growth of the money supply does not make use of all information about current (but unobserv-

[28] See, for example, Poole (1970), von Hagen (1986) or Friedman (1990).

[29] A detailed discussion is in von Hagen (1986).

[30] In practice, a correction is added to account for the trend-wise reduction of velocity.

able) price-level movements available to the central bank. By considering more information, in particular financial market data, the central bank could achieve a more precise prediction of the rate of inflation, because a forecast based on several variables is likely to yield smaller forecast errors. Based on more information, the central bank could gain better control over the rate of inflation. An intermediate target strategy should make use of many variables and embed them in a well-defined *inflation forecast*, that is, a scalar aggregate of all relevant information. The intermediate target would then be a synthetic variable composed of many ingredients weighted according to their usefulness for prediction purposes.[31] Obviously, monetary targeting is a special case of this which arises if money growth is the best predictor of inflation.

The argument that using more variables to predict current inflation leads to more precise forecasts is certainly correct in the standard textbook scenario where policymakers know the relations between monetary policy variables, other variables, and the rate of inflation. But if such knowledge cannot be assumed, the argument need not be valid. If the relevant relations are uncertain and the statistical properties of this uncertainty are not known, the quality of the forecast may be improved by not using all observable information.

A related point is that the call for using as much input as possible assumes that the central bank is interested in keeping the standard prediction error about the rate of inflation low. But in practice, central banks often seem to care more about correctly guessing turning points in the inflation rate than about predicting the rate correctly on average. If so, the focus on a monetary target may be more helpful than including a multitude of variables in the intermediate target.

Controllability is another issue. With a monetary target, the appropriate policy reaction to information that indicates an increase of inflation is a reduction of money growth. The central bank should raise money market rates until money growth slows down sufficiently. Because money is readily observable, the central bank can check the adequacy of its measures relatively quickly. Things are different with an inflation forecast: it allows a check of the monetary policy reaction only after the next inflation forecast is made. This makes monetary policy reactions more sluggish and less precise.

[31] Note that Brunner and Meltzer (1967), who developed the theory of intermediate targets, argued for the use of a synthetic variable under some circumstances.

Finally, the criticism that monetary targeting disregards valuable information starts from the text-book description of such a strategy, in which the central bank pays no attention to anything other than the rate of money growth once the target is set.

The *Bundesbank's* practice illustrates that the use of a monetary target can actually be quite flexible. This is witnessed, first, in the formulation of the target as a corridor which is regularly revised around 1 July, when the Bank announces whether a rate in the upper, the middle, or the lower part of the corridor is targeted for the rest of the year. Beyond that, *Bundesbank's* willingness to tolerate deviations from the monetary target if other sources of information on inflation motivates this is well documented. To quote Helmut Schlesinger (1988), former *Bundesbank* president:

> ... the *Bundesbank* [has] never, since 1975, conducted a rigid policy geared at the money supply alone; all available information about financial markets and the development of the economy must be analyzed regularly. [...] Furthermore, the *Bundesbank* had to check the consistency of its original monetary target with the ultimate policy goals.

Similarly, Issing (1994b), the Bank's current chief economist, explains:

> [I]nstead of pursuing monetary targets 'at any cost,' the *Bundesbank* has been pragmatic and has tolerated deviations on a case-by-case basis. Even a strict adherence to the monetary target does not imply that the price level target is met.

Monetary targeting does not keep the central bank from using all available information in a flexible way. Here, the difference between a monetary target and an inflation forecast seems vastly overstated.

The second objection against the use of a monetary target by the ECB is based on the expectation that financial sector relationships, such as the money demand function, will be severely unstable in the initial phase of EMU.[32] Based on Poole's (1970) seminal analysis, this

[32] Econometric analysis suggesting the relative stability of an aggregate European-demand function compared to its components, the national money-demand functions (for example, Kremers and Lane, 1990, Monticelli and Strauss-Kahn, 1991) are in fact irrelevant to the issue of financial-sector instability in the early EMU. Such

prediction suggests that monetary targeting would be an inappropriate strategy. But this conclusion is not justified. The argument is convincing only if the relations included in the inflation forecast can be expected to be more stable than the demand for money at the start of EMU. *A priori*, there is no reason to assume that this is true, unless one is willing to assume that the ECB will know the statistical properties of all relationships at the start of EMU. Because the inflation forecast contains many relations instead of just one, the compounded structural instability from all of them may well be greater than the instability of the demand for money. Furthermore, the optimal weights of these relationships may well change in the initial phase of EMU. The inflation forecast would then have to be redefined frequently. Apart from the operational difficulties involved, this would leave the public with the impression that the central bank continuously tinkers with the intermediate target. This impression would make it more difficult to gain credibility for the ECB.

All this is not to suggest that the potential instability of the demand for money should be taken lightly. But such instability can be accounted for, to some extent at least, in the formulation of the monetary target. On the one hand, one may expect that the transactions demand for money will be much more stable than the portfolio demand for money, because the diversity of financial investment opportunities is greater across the EMU countries than the diversity of the patterns of transaction.[33] This suggests that, in contrast to *Bundesbank*, the ECB should target a narrow monetary aggregate. On the other hand, the ECB should target the growth rate of the average money supply over the target horizon rather the average growth rate, which gives too much weight to unexpected, transitory shocks to the money supply towards the end of the period.

Finally the ECB should choose a relatively long-target horizon, for example, two years, so that deviations form the monetary target can be diagnosed regarding their relevance for inflationary developments.

studies merely show the relative stability of an average of several stochastic variables relative to the components. But they cannot account for the changes in money demand following the introduction of the new currency. Rother (1996) shows how the changes in the transactions patterns will affect the parameters of the money demand function.

[33] von Hagen (1993) finds that the demand for narrow money was more stable than the demand for broad money after German unification.

3.2. Conclusion on monetary policy strategies

In sum, the objections against monetary targeting in the EMU turn out to be much less forceful than they are commonly presented. If this is true, an important argument in favor of monetary targeting remains. Adopting such a strategy would make the ECB's monetary policy look very much like the *Bundesbank's* policy and signal to the public that the ECB stands in the monetary policy tradition of the *Bundesbank*.

Compared to a strategy that until now has only been used by relatively dependent central banks and only in the context of reducing excessive inflation, monetary targeting would thus would create an immediate reputational capital that would make the young ECB's task much easier. Given the close link between monetary policies in the core countries and in Germany, one may expect such a strategy in the *core-EMU* scenario. For a *large EMU*, agreement on a monetary target would be much more difficult, and the ECB much more likely to forego the reputational capital gain involved.

4. Monetary policy instruments for the ECB

A central bank's catalogue of monetary policy instruments determines how central bank money is supplied to the economy. Central bank instruments shape and depend on the micro structure of the monetary environment. Contrary to a popular belief, the importance of the instruments for monetary policy strategies, such as monetary targeting or inflation targeting, is small. The only strategy for which this is not true is exchange-rate targeting, which naturally relies mainly on foreign-exchange market interventions. But other strategies can be implemented successfully with very different sets of instruments. They are important, however, for several questions regarding the daily conduct of monetary policy. Among them are the degree of activism the central bank will develop, the degree of regional centralization of its operations, and the structure and the degree of competition in the banking industry.

A first impression of the way a central bank operates is obtained by looking at the asset structure of the sources of central bank money.

Table 3 presents an overview of the structure of 15 EU central banks.

Table 3. Structure of central bank assets (percent)

Country	Loans to domestic banks		Net foreign reserves		Net claims on government	
	1980-84	1990-94	1980-84	1990-94	1980-84	1990-94
Austria	27.4	28.0	68.6	68.6	1.7	3.3
Belgium	n.a.	n.a.	78.8	81.2	21.2	10.5
Denmark	3.8	19.7	22.8	41.3	-9.7	-20.1
Germany	36.7	58.4	45.5	25.3	10.4	4.9
Greece	3.3	7.2	11.9	24.9	42.9	58.2
Spain	13.7	32.1	30.1	50.5	51.3	13.9
France	24.3	33.5	57.2	41.2	-1.4	-7.1
Ireland	n.a.	n.a.	81.3	81.5	10.6	-18.4
Italy	1.3	2.3	46.8	32.7	51.2	64.1
Netherlands	12.3	7.9	82.8	85.0	-1.5	0.8
Portugal	2.6	4.7	50.1	83.3	35.0	-3.7
Finland	24.9	19.2	45.7	69.0	-5.0	2.5
Sweden	5.9	7.5	31.5	53.8	60.6	20.9
UK	0.3	0.1	47.8	19.2	30.5	36.0

Source: IMF, International Financial Statistics, various issues

Two observations are noteworthy:

1. Claims on government are a sizeable part of central bank assets in only three of the fifteen countries: the UK, Italy, and Greece. In Sweden, that share has fallen drastically between the early 1980s and the early 1990s. In all other countries, net claims on government are less that 10 percent of all central bank assets.
2. Two types of central banks appear to be emerging over this time period in the EU. The smaller countries still rely quite heavily on foreign exchange reserves as the main source of central bank money. This is reflected by the shares of net foreign assets of two-thirds or more in total assets.[34] The other type, represented by Germany, but increasingly approached also by France, relies mostly on loans to domestic banks as a source of central bank money.

With the exception of Italy, the UK, and, possibly Sweden, domestic markets for short-term government paper seem to be too undeveloped to allow the central bank to intervene regularly as part of its

[34] Note that the share of net foreign reserves in total assets is biased downward in Denmark due to the large, negative net claims on government.

monetary management. In Germany in particular, this has lead to the use of REPOs, collateralized loans to commercial banks, as the main source of central-bank money supply. This instrument facilitates short-term operations without relying on government paper with short maturities.

4.1. Techniques of central bank money supply and reserve requirements

Table 4 provides an overview of the main current central bank instruments. Techniques of central-bank money supply can be broadly divided into standby facilities, which allow banks to borrow from the central bank at their own initiative, and open market operations.

Table 4. Central-bank instruments

Country	Standby facilities[1]	Open market operations	Reserve requirement
Austria	B	Repo, Swap; W	non-interest bearing
Belgium	B, P, D	O, Repo, Swap; M	none
Denmark	D	O, Repo, Swap; M	none
Germany	B, P, D	O, Repo, Swap; M	non-interest bearing, A
Greece	B, P	O, Repo, Swap; W	interest bearing, NA
Spain		Repo, Swap; M	non-interest bearing, A
France	P	O, Repo; M	non-interest bearing, A
Ireland	D, P	O, Repo, Swap; M	interest bearing, NA
Italy	B, P	O, Repo, Swap; M	interest bearing, A
Netherlands	B	O, Repo, Swap; M	interest bearing, NA
Portugal	B, P	Repo; M	non-interest bearing, A
Sweden	D, P	O, Repo; M	none
Finland	D, P	O, Repo, Swap; W	non-interest bearing, NA
UK	P	O, Repo; M	none

Note: **B**: subsidized loan facility, **D**: deposit facility, **P**: short-term facility for bridging peaks in-liquidity demand, **O**: outright transactions, **Repo**: repurchase agreements with domestic credit institutions, **Swap**: swap operations in foreign currency; **W**: one or several operations per week; **M**: multiple operations daily; **A**: with averaging provision; **NA**: without averaging provision.

Source: EMI, Annual Report for 1994

Spain and Denmark are the only EU countries with no standby loan facilities. In the other countries, standby facilities exist in two forms. Austria, Belgium, Germany, Greece, Italy, the Netherlands, and Portugal all have basic loan facilities with below-market interest rates. This means an element of subsidization which makes such fa-

cilities a potential instrument of structural policies in the banking industry. While the *Bundesbank*, in particular, pushes for maintaining these facilities, the mandate for having market-oriented instruments suggests that the ESCB will not have them.

In the same countries except the Netherlands as well as in France, Ireland, Sweden, Finland and the UK, the central banks provide standby facilities for banks to satisfy the peak demand for reserves. The interest rate on these facilities is a ceiling for the domestic overnight money market rate. In Belgium, Denmark, Germany, Ireland, Sweden, and Finland, the central bank also offers a standby deposit facility, which creates a floor for overnight money market rates.[35]

All EU central banks regularly conduct open-market operations in domestic government paper, mostly in the form of REPOs. The indication in Table 4 that central banks execute multiple daily operations is somewhat misleading, because it does not mean that the central banks are active in the market every day, even if they have the ability to be. Apart from the central banks of France, Portugal, Sweden and the UK, EU central banks also use swap operations in foreign currency to absorb central bank reserves in the money market.

There is considerable diversity regarding current provisions for reserve requirements. Belgium, Denmark, Sweden, and the UK have no reserve requirements. Austria, Germany, Spain, France, Portugal, and Finland have reserve requirements and pay no interest on required reserves, while Greece, Ireland, Italy, and the Netherlands pay interest on required reserves. In most cases, the reserve requirement comes with an allowance for averaging reserve holdings over the reserve period, which implies that banks can use their reserve accounts as working balances and balance reserve shortfalls and surpluses over time.

The debate over reserve requirements involves three issues:

1. The argument that reserve requirements are necessary to create a sufficient demand for central bank money and that the central bank would otherwise lose control over monetary conditions and hence the price level. This is clearly refuted by the observation that banks continue to hold significant reserves in countries where no reserve requirements exist. Demand for central bank money still exists because banks need highly liquid assets to cover deposit out-

[35] *Bundesbank* offers a standby facility that sells *Bundesbank*-created short-term paper, which economically serves the same function.

flows. Furthermore, banks can circumvent reserve requirements by creating non-reservable, liquid liabilities such as CDs. As a result, it is uncertain that reserve requirements really guarantee a high level of demand for reserves.

2. Banks can use their central bank accounts to smooth out random inflows and outflows of reserves during the reserve period without turning to the money market. Reserve requirements reduce the volatility of short-term money market rates and free the central bank from the obligation to intervene in the market continuously. But, as King (1994) observes, the key to this argument is the averaging provision, not the reserve requirement. That is, the same effect on interest rate volatility could be achieved if banks were allowed to overdraw their central bank accounts with the provision that the average monthly balance be zero. The difficulty with that proposal is that it leaves the maximum amount of overdraft a bank can run at any time on its ECB account undefined. One straightforward solution would be the rule that overdrafts cannot exceed a certain percentage, say, two percent, of the volume of deposits a bank held the month before.
3. The important argument against reserve requirements is that they act as a tax on bank deposits. Banks subject to reserve requirements suffer from a competitive disadvantage which can be quite harmful with free, international capital mobility. The counterargument that banks can be compensated for this tax by subsidized standby loan facilities cannot convince, because there is little reason to assume that the subsidy and the tax would always match each other. Quite apart from that, the logic of curing one distortive instrument by using another one remains obscure.

Reserve requirements are foreseen in the TEU, and an agreement seems to exist today that the ECB will be equipped with a pertinent regulation. But the fact that the *Bundesbank*, the most outspoken defender of this instrument, has brought down required reserve ratios to very low levels over the past three years signals that the averaging provision will be the main purpose of that instrument.[36] International financial market competition will force the ECB to keep the reserve ratios low. With such a provision, the ECB will have little need in normal times to be active in the money market all the time. This sug-

[36] See Issing (1994a).

gests that the ECB is likely to rely predominantly on REPOs with EMU banks that are conducted on a weekly or bi-weekly basis.[37]

The same conclusion can be reached from a different angle. Article 12 of the ESCB Statutes requires the ECB to involve the national central banks in the conduct of monetary policy to the largest possible extent. This indicates a preference for decentralized operations conducted simultaneously at several financial centers in the EMU, rather than centralized open market operations in one market that would necessarily become the dominant market in the EMU, comparable to New York in the U.S. financial system.

A policy of frequent, daily interventions in the money market has a natural tendency towards local centralization of money market operations, or, if this was deemed undesirable, towards the erection of artificial market barriers that prohibit large-scale transactions between local markets. Given the frequent changes of the central bank money supply in both directions that would occur under such a regime, coordinating daily interventions at various places among the EMU central banks would be prohibitively difficult.

In contrast, weekly or bi-weekly REPO operations tendered to local banks would be relatively easy to coordinate. The preference for decentralization therefore suggests the use of this type of technique. Consistent with this design, the national central banks are likely to offer standby credit and deposit facilities to provide a ceiling and a floor to money market rates. These, again, would be easy to coordinate. The ECB will still want to have some instruments for very short-term money market intervention, which would be used in a locally more concentrated way, but it is likely that their use would be restricted to exceptional circumstances.

A final question in this context is, who would be eligible to conduct business with which central bank in the ESCB. The notion of a truly integrated European financial system would suggest that banks can borrow from and hold deposits with any central bank in the EMU—regardless of its geographical base. Such a scenario would have the advantage of creating some competition between the central banks for customers, which leads to more efficient production of central-bank services.

[37] This also seems to be the emerging consensus in the EMI. See, for example, "Zaghafter Konsens bei Instrumenten." *Börsenzeitung* 11 November 1995.

However, several reasons exist to think that ultimately, banks will be allowed to do business only with the central bank of the country where they are located. (1) A completely open system would require the exchange of information about the financial security of banks. This would, in turn, require greater coordination of regulatory policies. (2) Banks may wish to use commercial paper and trade bills as collateral against central-bank loans. This, in turn, would require sufficient expertise in each national central bank to assess the quality of the company or institution that issues the bill, which could make loan operations quite costly. So an open system creates an incentive to restrict eligibility of collateral to very standardized types of paper, such as treasury bills or commercial paper issued by large companies. Eligible assets would then enjoy a liquidity premium, which may be considered undesirable. In view of these considerations, a restrictive solution seems more likely.

4. 2. Regulatory issues

A division exists today among the member countries concerning the degree of involvement of the central bank in prudential supervision (see Table 5). Among the fourteen current central banks in the EU, six are not involved in supervision at all or have only some small, administrative functions in this area. In these countries, banking supervision is the function of separate government agencies. The remaining ones have substantial responsibilities in this area.

Table 5. Central bank involvement in banking regulation

Central banks without supervisory functions for credit institutions	Central banks with supervisory functions for credit institutions
Austria, Belgium, Denmark, Germany, Finland, and Sweden	Greece, Spain, France (through banking commission), Ireland, Italy, Luxembourg, Netherlands, Portugal, and the UK

Source: EMI, Annual Report 1994

The TEU is vague on this issue. The ESCB is asked to "contribute to the smooth conduct of policies pursued by the competent authorities relating to the prudential supervision of credit institutions and the stability of the financial system" (article 105(5) of the TEU). But the development of the home-country principle in EU banking regulation

suggests that national supervisory institutions will be the principal players in this area.

A greater involvement of the ECB in these matters might, however, arise if national supervisory institutions based on industry arrangements are eroded by increasing international competition and the growing fuzziness of the structure of the financial system due to deregulation. Where industry arrangements are not replaced by effective, national government institutions, a regulatory void could emerge and require the ECB to step in to protect the European banking industry.[38]

Things are more open-ended regarding regulatory functions connected to the operation of payment systems. The fact that there are currently noticeable differences in the national payment systems (Evans and May, 1992) suggests that regulatory functions will primarily remain under national authority. Article 105(2) of the TEU and article 22 of the Statutes state that the ESCB is charged with the promotion of "the smooth operation of payment systems." Current interpretation of that article places the responsibility in this area with the NCBs rather than the ECB (Hartmann, 1995). But the home-country principle does not apply regarding this area of regulation. All European central banks, even those which have no function in prudential supervision, are already involved in it. This is a consequence of their engagement in the operation of the national payments systems.[39] Because each central bank in Europe remains responsible for the functioning of the payments system in its home country, subsidiaries of foreign banks are subject to the regulations of the national payments system such as solvency requirements, minimum transaction volumes, participation fees, technical requirements, and certification by the central bank. This principle has been maintained recently by the Working Group on EC Payment Systems, a committee of the EC central banks (Hartmann, 1995). However, the development of a EMU-wide payment system may well lead to a more centralized solution in which the ECB would stand ready as the lender of last resort

[38] See Goodhart and Schoenmaker (1993) for a discussion of this issue.

[39] In most EC countries, central banks are involved only in payments systems handling large-scale payments. Most banks leave the technical operation to private clearing houses, but execute the final settlement of payments on the central bank accounts of the participating banks. Central bank involvement in this activity is regarded as a necessary condition for effective use of monetary policy instruments (Hartmann, 1995).

guaranteeing the liquidity of the system. In such a scenario, the ECB would likely demand more authority in pertinent regulatory arrangements if only to protect itself against frequent bank failures.

This issue of payment-system operation turns the attention back to central-bank instruments. A central bank, standing ready as lender of last resort, must have the operational capability to absorb a large increase in total reserves that result from an emergency operation within reasonable time, so that the aggregate supply of central bank money is not affected for more than a short period. Two rescue operations that the U.S. Federal Reserve System undertook in the 1980s illustrate this. The Continental Illinois Bank failure, which involved a $4.5 billion discount window loan in one week, and the Bank of New York computer breakdown, which required a discount window loan of $22.5 billion overnight.[40]

In both cases, the Federal Reserve System managed to quickly offset the increase in bank reserves through open market operations. The experience suggests that, the more the ECB would be drawn into managing a common EMU payment system and be required to stand by as lender of last resort, the more it would need instruments for short-term intervention in the money market.

4.3. Conclusion on monetary policy instruments

The choice of central bank instruments is more related to the micro structure of financial markets in the EMU than with the choice of a particular monetary policy strategy. The current work of the EMI suggests that the ECB will have a basic set of instruments that consist of a stand-by loan facility and an automatic deposit facility that provides the ceiling and the floor for short-term interest rates.

In addition, the ECB will rely mainly on REPOs to control the supply of central bank money. Reserve requirements may come at very low rates to provide the banking sector with a way to smooth random variations in liquidity and reduce the need for continuous central-bank intervention in the money market. This will help the ECB to sustain a fair degree of centralization of its operations.

[40] See Davis (1995) and Goodhart and Schoenmaker (1993).

5. Monetary politics in the EMU

ECB policy decisions will be made by the ECB Council, a committee of NCB presidents, and ECB Board members. It is likely that the Board will have four members, if EMU starts with a small group, and six, if it starts with a large group. Thus, the Council will consist of 11 or 16 members. As previously pointed out, these members will probably have very different preferences regarding monetary policy and different views of what actions should be taken in a particular situation. ECB policy will require and reflect compromise between these different interests. This leads to two important questions: Will the ECB Council be able to develop a consistent policy? How good will the compromise be? Political economy has something to say on both questions, which are discussed in the following sections.

5.1. Majority decisions on the ECB Council

A fundamental insight of political economy is that majority decision-making produces irrational behavior when the decision makers' preferences are diverse and there are more than two alternatives.[41] For illustration, consider a ECB Council meeting and assume, for simplicity that the Council has five members: A, B, C, D, and E. The Council must decide in which direction to move money-market rates over the coming months. Let there be three alternatives: higher, the same, or lower interest rates. As these alternatives ultimately stand for different combinations of inflation and unemployment, imagine these preferences:

- *Tight money* members (A and D) favor higher interest rates over no action and no action over lower rates.
- The *activist, easy money* member (C) prefers lower interest rates, but if this cannot be achieved, she prefers action to inaction, that is, higher rates to no change.
- The *non-activist easy money* members (B and E) prefer no change to easy money and easy money to tight money.

If the session starts with tabling tight money against inaction, the Council votes to raise interest rates. But B, C, or E will ask to table easy money against tight money, which gives a majority to easy

[41]The important theoretical contributions are Arrow's (1951) *Impossibility Theorem* and McKelvey's (1976) *Chaos Theorem.*

money. At this point, A, D, or E will propose no action against easy money, and the no-change alternative wins. The Council might then continue in cycles, until the meeting has to come to an end. Ultimately, the Council may be unable to come up with timely decisions at all or may produce erratic decisions.

Historical experience points to the importance of this problem. The early Federal Reserve System in the U.S. was governed by the Open Market Investment Committee (OMIC), where the presidents of the regional reserve banks decided the course of monetary policy. During much of the 1920s, the committee was dominated by Benjamin Strong, the president of the New York Federal Reserve Bank. But when Strong died in 1928, decision-making was stalled by the inability of the regional presidents to reach a common view of monetary policy. Friedman and Schwartz (1963) argue that this inability was one of the main sources of the Fed's failure to cope with the onset of the Great Depression.

One might argue that the example is a special one and need not be relevant in practice. But—as anybody who has served on faculty committees can testify—voting cycles and the resulting irrationality of majority decisions are not the outcome of bizarre assumptions nor limited to strange situations. The likelihood of voting cycles increases with the number of decision makers, the heterogeneity of their preferences, and the number of alternatives available (Plott, 1976). For the EMU, this means that a stalled ECB Council is more likely in a *large EMU* than in a *core EMU*. Another objection might be that ECB Council meetings will soon be guided by the ECB Board, because its members will find it easier, in their daily interaction, to exchange views and coordinate their actions than the NCB presidents, who meet much less frequently (Goodhart and Vinals, 1994).

However, the cyclicality of majority voting also implies that majority decisions can be manipulated, for example, by choosing the sequence of votes taken. Here, suppose that the president prefers no change and determines the sequence of votes at the Council meeting. The president may start the meeting arguing that the Council should first decide which direction to move interest rates if at all, and then whether action is preferred to inaction. The first vote yields a majority for lower interest rates, the second a majority for no change. But if the president is of the tight-money type, then the president will argue that a vote should first be taken between no change and lower interest rates, and then between no change and higher rates, which will yield a

rise in the interest rate. Obviously, such behavior can only be divisive, because the NCB presidents will feel cheated. Political struggles between the Board and the NCBs would follow, and it is hard to imagine that the quality of EMU policy would improve.

One way to overcome the instability of majority voting is by framing Council decisions in ways that sufficiently reduce the number of alternatives. While political economy commonly regards institutional rules as instruments to achieve this (for example, Shepsle, 1979), a relatively small body, such as the ECB Council, may quite easily develop informal, generally accepted rules of behavior that serve the same purpose (Kreps, 1990).

At this point, the question of monetary policy strategy becomes relevant again. By providing a focal point for monetary policy actions, a consistent strategy structures decisions and reduces the number of possible actions. The more concrete prescriptions a strategy contains in reacting to current economic developments, the easier it will be to reach stable majority decisions. Earlier discussion in this paper suggests that the combination of a price norm and a monetary target would be more helpful in this regard than an inflation target combined with an inflation forecast. The former focuses central bank decisions on a constant price norm in the long run and on monetary developments in the short run. The latter requires considerations of adjusting the inflation target to current shocks and leaves the reaction to changes in the intermediate target much more open.

Another way to overcome the instability of majority voting is by development of stable coalitions. In the U.S., the Fed's ability to make timely decisions was restored by the 1935 Banking Act, which reformed the Open Market Investment Committee—called the FOMC (Federal Open Market Committee) afterward—into a coalition of seven Board members, dominated by the chairman and only five voting regional presidents.

The by-laws of the FOMC also prohibit the regional presidents to vote as representatives of their regional banks. For the ECB, the development of leadership by the Board is a greater problem. The ECB Council will be composed of four Board members and seven NCB presidents in the *core-EMU* scenario, or six Board members and nine NCB presidents in the *large EMU* scenario. Provided that the Board members can develop a unified position, they would have to attract two NCB presidents to form a majority in the *core-EMU* and three NCB presidents—out of a more heterogeneous group—in the *large-*

EMU scenario. In existing federal systems, the Board's position is often strengthened by its information advantage over the regional Council members. For the ECB, this is less likely to be the case, because the NCBs have well-developed, economic departments that collect data and provide analysis.

Nevertheless, several possible, stable constellations can be identified. Consider the *core-EMU* first. One outcome might be that the Board's preferred policy resembles the *Bundesbank's* views on EMU monetary policy. The Board would then be able to attract the *Bundesbank* president together with—at least—the Dutch or the Austrian president into a coalition with a stringent commitment to price stability. Here, the Council is likely to adopt monetary targeting and a price norm, which would help build the coalition with the *Bundesbank*. Council decisions would then be consistent over time and conducive to credible low-inflation policies.

In an alternative scenario, the Board develops a strong preference for active demand management. With this orientation, the Board is likely to face a stable, but opposing minority coalition of the NCB presidents of Germany and its smaller neighbors—a total of five. Council meetings would then become struggles between the Board trying to attract two votes, and the *Bundesbank*-led group trying to attract one more vote. Here, Ireland, and France would become the pivotal voters, which, depending on their national economic performance, would alternate between the two camps. As a result, ECB policy would become less consistent and less committed to price stability.

In the *large-EMU* scenario, a stable coalition between a stability-oriented Board, the *Bundesbank* president and two other, similar-minded NCB presidents remains possible. But in this scenario, a more activist, less inflation-averse Board may also find a stable majority if this is attractive to the southern European NCB presidents or a subset of these and the French or Irish representative.

Finally, the *large EMU* also supports two, stable minority coalitions: the Board and the group around the *Bundesbank* president, which temporarily attracts other votes on the Council. These two minorities would have to win three and four additional votes, respectively, to build a majority. This would make the outcomes more volatile than in the *core EMU* scenario.

Comparing the *core-EMU* and the *large-EMU* scenarios then leads to two conclusions:

1. The *large EMU* will, on average, have a higher inflation rate, because majority constellations that neglect the commitment to low inflation in favor of active demand management are more likely.
2. Monetary policy in the *large EMU* will be more volatile, because the greater heterogeneity of preferences and the different composition make the construction of stable majorities more difficult.

5.2. National interests and ECB policy

Two different perspectives of monetary policy exist in a monetary union: one that takes union-wide aggregates of output, employment, and prices as the relevant targets of union monetary policy, and one that takes regional or national aggregates as targets and makes monetary policy actions dependent on regional or national idiosyncrasies, country-specific shocks, and even national electoral interests.

As pointed out in section 2, monetary policy makers from different parts of the EMU will have different views regarding monetary policy and these perspectives may differ significantly from the views of the average person in the monetary union. Voting patterns of FOMC members (Havrilevsky, 1990, 1993) and members of the German *Bundesbank* Council (Lohmann, 1994) suggest that preferred policy actions can differ widely between Council members. The heterogeneity of economic structures, fiscal conditions and inflation preferences prevailing in the EU suggests that such differences will be even larger in the EMU than in existing monetary unions.

Central bank laws commonly provide that each council member has one vote (Aufricht, 1965)[42]. This is also true for the ECB. While some argue that the one-member-one-vote rule diminishes the incentive to vote according to national interests, presumably by promoting a team spirit among the board members, the opposite is at least as likely.

Suppose that voting according to national interest carries some utility cost for a Council member, for example, reprimands by the chairman or chiding press commentaries in other member countries. The Council member's incentive to vote in this way nevertheless increases with the likelihood that he or she will influence decisions in the desired way, that is, the likelihood of being the pivotal voter. It is

[42]In some central banks the chairman has a tie-breaking vote.

straightforward to show that this likelihood is larger with equal votes than with votes weighted according to country size for the representatives of small member countries; the opposite is true for representatives of large member states.[43]

Assume, for example, an ECB Council which consists of representatives from Germany, France, Belgium, the Netherlands, Austria, Ireland, and Luxembourg but—for simplicity—of no Board members. With weighted voting and weights equal to those in the European Council and assuming that all majority coalitions are equally likely *ex ante*, Luxembourg's chance to be the pivotal voter would be 13.8 percent, compared to 52 percent for France. With equal votes for all Council members, Luxembourg has the same chance as France, namely 31.3 percent. So the Luxembourg representative has a much greater net pay-off to expect from voting according to the national interest. In the EMU, where the number of small states (five in the small, six in the large EMU) exceeds the number of large states (two in the small, four in the large EMU), equal votes will increase the tendency to vote according to national interest. This conclusion is supported by the fact that the move to EMU is largely driven by the desire to take European monetary affairs out of the hands of the *Bundesbank* and make it more conforming to the national interests of the countries surrounding Germany. Thus, even if the Board members develop an EMU perspective of monetary policy, Council decisions will be responsive to national interests, because the median voter will always be an NCB president.

The responsiveness of Council decisions to national interests has two consequences.[44] On the one hand, monetary policy actions will respond to national, idiosyncratic shocks. For example, a Council member, whose home economy is hit by a negative supply shock, will vote in favor of easier monetary policy even if this is unwarranted by the state of the aggregate EMU economy. Because all NCB presidents act in this way, the Council decision will depend on the shock hitting the median voter's home economy. Assuming that the Board members will vote against responding to national shocks, EMU monetary policy will respond to the sixth (eighth) largest national idiosyncratic shock in absolute size in the *core (large) EMU*. Because EMU monetary

[43] Formally, this likelihood is expressed by the Shapley value of a Council member.

[44] For a formal analysis of these arguments, see von Hagen and Süppel (1994) and von Hagen (1996).

shocks affect output and prices everywhere, this makes EMU output and inflation excessively volatile. Note that this is a voting equilibrium in the sense that refraining from voting in the national interest is a dominated strategy for each NCB president: he or she would then have to fear that the majority decision responds to economic idiosyncratic conditions elsewhere, and this would worsen the outcome from his or her perspective. But at the same time, the NCB presidents may be imperfectly informed about the effects of aggregate monetary shocks in the various parts of the union. Such uncertainty will make them unduly reluctant in using monetary policy to stabilize short-run output fluctuations. The result would again be excessive volatility of output and prices in the EMU.

The prevalence of national interests in ECB Council decisions has its positive sides, too. These come to play when individual countries wish to raise inflation for political convenience before elections or to reduce their governments' real debt burdens. As long as electoral cycles remain imperfectly coordinated and a majority of EMU countries is not affected by debt crisis, the median voter on the ECB Council will vote against such action. The absence of a central government in the EMU then implies that ECB performance will be less affected by political considerations than national central banks are.

While these considerations are based on the analysis of ECB Council meetings as single-shot voting games by the NCB presidents in which cooperation does not pay off, one may argue that other outcomes are possible, because Council meetings occur regularly, which allows members to develop cooperation through informal conventions.[45]

Such conventions can go different ways. One plausible convention might be that individual NCB presidents refrain from voting according to national economic shocks if they can expect all others to behave in the same way. Thus, while each member would willingly forego the chance of improving the domestic economy's performance through collective action, each would do this in return for the promise that collective action responding to idiosyncratic shocks elsewhere would not worsen his domestic economy. Such a convention would obviously improve the efficiency of EMU monetary policies.

[45] Baron (1991) and Baron and Ferejohn (1989) investigate the role of conventions in voting games.

Yet, other conventions are also possible. For example, Council members might be willing to trade favors over time, each supporting the other's demands for easy money and each expecting to be repaid a similar favor when domestic political conditions call for monetary ease in his own country. As shown in von Hagen (1996), such conventions can be supported by relatively simple social-coordination mechanisms, such as tit-for-tat—punishing fellow members that do not show solidarity with the others. The result of such conventions might be permanently higher inflation in the EMU. As noted earlier, ECB independence provides no safeguard against such behavior, and the lack of ECB accountability means that the Council members are relatively free to engage in it.

5.3. Conclusion on monetary politics in the EMU

Collective action problems create the risk of inefficient ECB policies. Unstructured majority decisions can lead to voting cycles and inability to pursue a consistent monetary policy. Such problems can be reduced by using the central bank's intermediate target strategy as a consistent framework for decisions, which provides the Council members with focal points for their actions. Here, a monetary target might be more useful than other, more complex intermediate targets.

A second inefficiency results from the incentive that individual Council members will have to cast their votes in light of current domestic economic conditions rather than considering the aggregate economy of the EMU. Here, voting conventions can improve the outcome, but they can also worsen it. Appointing an ECB Board capable of leadership in Council meetings and firmly committed to the mission of price stability will tend to reduce the problem.

Because collective action problems become larger in larger decision-making bodies, their importance for ECB monetary policy ultimately depends on the size and composition of the EMU. In the *core EMU*, achieving a stable, low-inflation monetary policy seems more likely from this perspective than in the *large EMU*.

6. Conclusions

This paper discusses the prospects of EMU monetary policy from various institutional perspectives. Because the members of the EMU are from among a group of countries with large heterogeneities regarding their economic and financial structures, their inflation prefer-

ences and their fiscal systems, the discussion is organized along a comparison of two scenarios: a *core EMU* consisting of Germany, France, Belgium, the Netherlands, Luxembourg, Austria, and Ireland, and a *large EMU* consisting of these countries and Italy, Spain, and Portugal.

The ECB is characterized by a high degree of independence and little accountability. This implies that the ECB is relatively free in choosing its own preferred policy. Arguments that its commitment to price stability will be lower and its exposition and responsiveness to political pressures for easy monetary policy will be higher in the large EMU, are presented.

In both scenarios, the ECB will face strong demand for active, discretionary stabilization policies, because being the only European institution of macroeconomic policy, it will be at the center of public criticism about adverse macroeconomic trends and fluctuations.

To focus its policy on the goal of price stability, the ECB should adopt a price norm combined with a monetary target as its intermediate target strategy. A price norm will allow the ECB to focus more closely on price stability than the alternative of an inflation target. Both the price norm and the monetary target will make the ECB look like a central bank in the tradition of the *Bundesbank*, a benefit—regarding reputation—that should not be squandered lightly. Objections to the use of a monetary target such as the risk of an unstable money-demand function or the loss of important information are less convincing than they might seem at a first glance. Proper design of the monetary target—targeting a narrow aggregate over a horizon of two or three years—can account for the extra uncertainty that will arise in the early phase of EMU.

Monetary policy instruments will be characterized by the combination of standby loan and deposit facilities providing a ceiling and a floor for money market rates, and a variety of reversible lending operations to commercial banks, which allow the ECB to control the European money market rate. It is likely that the ECB will adopt a reserve requirement with very low reserve ratios and an averaging function that helps banks to smooth short-term liquidity flows. From the ECB's perspective, the desirability of such an instrument arises mainly from the fact that it keeps the volatility of short-term interest rates low without daily interventions in the money market that would foster geographical centralization of the ECB's operations.

Finally, decision-making in the ECB will be hampered by problems of collective action. These problems are larger in the *large EMU* than in the *core EMU*. Inflation is, therefore, likely to be higher and more volatile in the former case than in the latter. Here, again, a consistent intermediate target strategy that focuses on a price norm and a monetary target can be helpful to improve the ECB's policy performance.

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