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THE PROSPECTS OF A MINI CURRENCY UNION IN 1999

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ABSTRACT

The Prospects of a Mini Currency Union in 1999*

In this paper we analyse the prospects of a mini currency union in Europe. We argue that the Maastricht strategy will create a situation in which the countries excluded from the EMU will use their negative voting power to bar the entry of a number of core countries into the union. The countries excluded will have a strong legal basis to do so because several core countries will fail one or more Maastricht convergence norms. Thus, the scenario that the financial markets believe in today is highly unrealistic. Instead countries will be confronted with the choice of a maxi currency union or no currency union.

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NON-TECHNICAL SUMMARY

One of the major issues confronting the European Union concerns the membership of the future EMU. In 1998 a decision will have to be made about who will be in the monetary union and who will be out. The consensus today seems to be that if EMU starts at all in 1999, it will consist of a core group of countries forming a mini currency union. This consensus view is also reflected in the financial markets. The spreads between the long-run forward interest rates in Deutsche Mark (DM), French Franc (FF), guilder, Austrian shilling and Belgium Franc (BF) have all but disappeared indicating that the market believes these currencies will form one currency union after 1999. The other EU forward interest rates, however, continue to be significantly higher than those of the core group of currencies, suggesting that the market has doubts about the entry of these currencies into the union in 1999

In this paper we analyse issues related to a mini currency union. We first survey the theory of optimum currency areas (OCAs) to find out what the pros and cons are of a mini currency union. We conclude that the OCA theory, although useful to understand the nature of the problems of a monetary union, is of little practical use in determining how large the monetary union should be in Europe. We also conclude that the costs and benefits of the union for a particular member are not independent from the question of who the other members of the union will be. In particular, if these other prospective members are 'too different', so that the probability of asymmetric shocks is high, the interest of the former country to team up with these 'strangers' will be weak. It also follows that the decision about who should be in and who should be out cannot be anything but a joint decision. The issue then is which procedure should be followed in this joint decision-making process. It is the merit of the Maastricht Treaty to have drawn up such a procedure.

The Maastricht Treaty embodies the idea that entry into the union must be the result of a joint decision-making procedure. The central ingredient of this procedure is the requirement that individual countries should force a number of their macroeconomic variables (inflation, interest rates, budget deficits and government debt) to converge, prior to entry, towards norms as formulated in the Treaty. The surprising feature of these entry requirements is that they all relate to *macro*economic variables, whereas the OCA theory stresses *micro*economic criteria (e.g. labour market flexibility) for a successful monetary union. The Maastricht Treaty focuses on the need to have macroeconomic convergence prior to entry into the union as conditions for a successful future EMU.

This Maastricht approach to monetary union leads to several problems. One relates to the fact that the convergence criteria may keep countries outside the union against their wishes for a long time, and for the wrong reasons. We analyse why countries with a poor reputation concerning inflation and public finances might find it difficult to converge to the EMU.

This will create an important political problem at the moment the decision about membership into EMU will be made (early 1998). As is well-known, the decision to allow individual countries into the EMU will be made by qualified majority (Maastricht Treaty, Article 109 j 4). As a result, three to four countries will be capable of forming a blocking minority creating a wide scope for coalition building by the losers in the Maastricht game. In other words, the countries that are commonly considered to be forming the hard core and expected to start the mini currency union in 1999 (Benelux, Germany, Ireland, France and Austria) will need the approval of the 'losers' who can form various coalitions to block the entry of one or more of the hard core countries. The question then is whether there will be objective grounds for the losers to exert their negative voting power? The answer is most likely positive.

The probability that one or more of the hard core countries will not satisfy one or more of the Maastricht criteria now looks increasingly likely. Core countries like Germany and France find it quite difficult to equate their government budget deficits to the 3% norm, and face the possibility that they may fail to do so in 1997. The debt-to-GDP ratio will represent an even more serious problem for a number of core countries (Belgium, the Netherlands, Austria). The Maastricht Treaty says that if the debt-to-GDP ratio exceeds 60% it should 'diminish sufficiently' and 'approach the reference value (60%) at a satisfactory pace' (Article 104 c 2). We show that some countries (Belgium, the Netherlands) will need decades to bring their debt-to-GDP ratios in the neighbourhood of the reference value if the pace at which this ratio is declining now is extended into the future.

We show that the losers will have a strong legal basis to claim that Belgium, the Netherlands and Austria do not satisfy the Maastricht criterion concerning the debt-to-GDP norm. In order to let these hard core countries pass the Maastricht entrance exam, therefore, it will be necessary to declare that one of the Maastricht criteria is not to be taken seriously. This will open the door to similar interpretations of other Maastricht criteria, however. For example, the losers will be able to claim that the interest rate criterion is completely arbitrary due to its self-fulfilling nature – because it is believed that these countries will be excluded from the future EMU, their interest rates are high, thereby validating this belief. Conversely, a decision to allow these countries into EMU

would more easily lead to interest rate convergence. What matters here, however, is not so much the fact that there will be equally good grounds to make exceptions for the application of the debt-to-GDP ratio as for the application of other convergence criteria but the fact that such selective interpretations will unravel the whole Maastricht convergence game.

From the previous discussion we conclude that the mini currency scenario that many observers today (including the financial markets) seem to take seriously is very unrealistic. The scenario of a mini currency union will almost certainly be blocked by the countries barred from entry, and they will have good legal and economic grounds to do so. The choice the EU countries will thus face in 1999 is to start a maxi currency union, which allows the entry of South European countries, or to postpone the union. The way this choice is made depends crucially on the attitude of Germany.

We analyse Germany's incentive for postponing entry into the EMU in the context of a simple option-pricing model, and arrive at the conclusion that this incentive will be strong when Germany does not have the choice to step into a mini currency union, but is forced to choose between entering into a maxi currency union or postponing entry.

How can Germany be convinced to start a maxi union anyway? It is clear that the only way the German public can be convinced that entering the union will not jeopardize monetary stability (low inflation) is by presenting sufficiently strong guarantees that the future EMU will not be prone to inflation. The only guarantees can come from steps towards institutional strengthening of the monetary union. This can be achieved in several ways. One foresees that countries who fail to satisfy the budgetary norms would not obtain a voting power on the board of directors of the European Central Bank (ECB). Thus, countries like Belgium, Italy, Sweden, and others would be accepted into the union. As long as their budgetary house is not in order, however, they would not be allowed to take part in the decision-making process of the ECB. As a result, there should be no fear that heavily-indebted countries may push the ECB to pursue too expansionary monetary policies.

A second step for institutional strengthening consists of defining and enforcing a procedure for the removal of the Executive Board of the ECB should it fail to maintain price stability. Such a procedure would do much more to ensure price stability in the union in, say, the year 2010 than the insistence that countries reduce their inflation rates and their budget deficits in the second half of the 1990s, before the union starts. Such a reform also goes some way towards making the future ECB more accountable. In this context inflation targeting

could be useful. Many central banks, including the Swedish central bank, now follow an inflation targeting procedure. The ECB could be required to use a similar procedure.

Third, the budgetary process in the different EMU countries should be reformed so as to make it more transparent, and less prone to lead to unsustainable budget deficits. Recently, Eichengreen and von Hagen (1995) have formulated proposals aimed at making the budgetary process more streamlined in the EU. In addition, they have proposed the introduction of National Debt Boards in each country to monitor the evolution of the national debt and to propose remedial action when particular targets are not met.

1. INTRODUCTION

One of the major issues confronting the European Union concerns the membership of the future EMU. In 1998 a decision will have to be made about who will be in the monetary union and who will be out. The consensus today seems to be that if EMU starts at all in 1999, it will consist of a core group of countries forming a mini currency union. This consensus view is also reflected in the financial markets. The spreads between the long run forward interest rates in DM, FF, guilder, Austrian shilling and BF have all but disappeared indicating that the market believes these currencies will form one currency union after 1999. The other EU forward interest rates, however, continue to be significantly higher than those of the core group of currencies, suggesting that the market has doubts about the entry of these currencies into the union in 1999[1]

In this paper we analyse issues related to a mini currency union. We first survey the theory of optimum currency areas to find out what the pros and cons are of a mini currency union. Second, we analyse issues of the political economy of the Maastricht Treaty which provides a blueprint leading almost inevitably towards a mini currency union. We conclude by discussing alternative scenarios about the size of the future monetary union.

2. THE PROS AND CONS OF A MINI CURRENCY UNION: THE THEORY OF OPTIMUM CURRENCY AREAS

The pros and cons of a mini monetary union in Europe can be derived from the traditional theory of optimum currency areas (OCA). This theory lists the criteria that countries (regions) should satisfy to become members of a monetary union without incurring "excessive" costs of adjustment to economic disturbances. The surprising aspect of this theory is that it does not list any of the Maastricht *macro*-economic conditions as necessary to form a monetary union. In contrast the OCA theory stresses *micro*-economic conditions that countries should fulfil if they want to form a monetary union. These can be

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[1] In De Grauwe (1996) it is shown that the forward interest rates with settlement date beyond 1999 are "pure" forecasters of entry in the EMU.

summarised as follows[2]. When countries are different in economic structure they are likely to face "asymmetric shocks". The greater the differences in economic structures the greater the likelihood that they will face such shocks. In the absence of the exchange rate instrument these countries will need a lot of flexibility in their labour markets (e.g. wage flexibility, labour mobility) so as to adjust to these asymmetric shocks and to prevent these shocks from leading to long lasting unemployment. In other words, this theory stresses that countries should converge in economic structures so as to minimise the likelihood of asymmetric shocks. If they don't, they will need a lot of flexibility in their respective labour markets to avoid the occurrence of large adjustment costs.

Of course, countries that find that these conditions are not satisfied can still form a monetary union. They may decide to do this because they have some non-economic reasons to do so. In fact most of the monetary unification processes in history have been undertaken because of the pursuit of non-economic objectives (e.g. political unification)[3]. The OCA-theory warns, however, that these countries will pay a price in the form of adjustment costs.

From the preceding analysis it is clear that significant risks exist for a number of countries to join a monetary union in Europe. The important question then is: Is the EU an optimum currency area? Or put differently what is the optimal size of the monetary union in Europe?

Important research efforts have been undertaken to answer this question. The methodology used to answer this question is varied. One methodology has been based on Vaubel's (1978) suggestion to analyse the variability of real exchange rates[4]. A more recent approach has employed the VAR-methodology as proposed by Blanchard and Quah (1989). In this approach one attempts to distinguish between permanent and temporary shocks, their correlation between countries and the implied required real exchange rate changes[5]. Other studies have analysed the correlation of the business cycles across countries (Artis and Zhang (1995)), and the degree of flexibility of labour markets[6].

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2 The loci classici are Mundell 1962), McKinnon (1963), and Kenen (1989). For a recent survey see Tavlas (1995).

3 See Bordo and Jonung (1996) for a recent historical overview of monetary unifications. See als Holtfrerich (1989)

4 See for example, Neumann and von Hagen (1991), De Grauwe and Vanhaverbeke (1993).

5 See for example, Bayoumi and Eichengreen (1992), and Mélitz(1996).

6 Se for example, Blanchard and Katz (1992), Eichengreen (1990), Bayoumi and Prasad (1995).

It is fair to summarise these empirical studies as follows. First, the EU of fifteen members does not seem to be a optimum currency area. That is, the EU-countries are so different that asymmetric shocks are likely to occur frequently. In addition, the degree of flexibility in the labour markets is so low that these asymmetric shocks are likely to produce large adjustment costs[7].

A second consensus view derived from these empirical studies is that a subset of EU-countries is likely to form an optimum currency area. Most often this subset is thought of as consisting of Germany, the Benelux and France(see Bayoumi and Eichengreen (1992), De Grauwe & Vanhaverbeke (1993), Neumann & von Hagen (1993)). Other studies find larger subsets to belong to an OCA. Artis and Zhang (1995) for example also include Southern European countries like Spain and Portugal into this subset[8]. Thus, although the general principle is shared by many that a subset of EU countries is an OCA, the agreement on the size of that subset is not very strong.

The problem with the OCA-literature and its empirical implementation is that it gives us no practical guide for deciding who should be in the future monetary union and who should not. First, most of these studies look only at the cost side of the monetary union and disregard the benefits (lower transactions costs, elimination of exchange rate volatility). It is therefore difficult to know whether the macro-economic adjustment costs outweigh these (micro-economic) benefits. Second, the dividing line between countries belonging to an OCA and those falling outside it is very difficult, if not impossible to determine. In fact, the OCA-theory has nothing to say about this. All it allows us to do is to observe that some countries may experience more adjustment costs in a monetary union than others. Those, experiencing larger adjustment costs may still find it worthwhile to participate in a monetary union. In other words, the OCA-theory does not provide us with a benchmark against which we could measure the maximum size of adjustment cost below which countries should stay in order to make a monetary union attractive. Third, it is unclear to what extent keeping one's own exchange rate helps countries to reduce adjustment costs following asymmetric disturbances. Monetarists will claim that there is very little an exchange rate can do to mitigate the effects of real shocks. In addition, most shocks that countries face do not follow the vaguaries of national borders, but occur at the sectoral and micro-levels.

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7 Notable dissenting views are provided by Gros and Thygesen (1992), Bofinger (1994) and Buiter (1995). These authors generally take the view that exchange rates are completely ineffective to alleviate the adjustment to asymmetric shocks so that countries lose very little by joining a monetary union.

8 A recent study by Erkel-Rousse and Mélitz (1995) comes to a similar conclusion.

There is very little a macro-economic variable such as an exchange rate can do to reduce adjustments costs associated with these micro- economic disturbances (see Gros (1996) on this).

The preceding leads to the view that, ultimately each nation will have to decide on its own whether it is in its national interest to join the monetary union. Like individual consumers are supposed to know best what their private interests are, so are nations best placed to determine what their national interests are. Presumably they will do this using the tools offered by OCA-researchers. But a country may still come to a decision that the possible future adjustment costs identified by an OCA-analysis are compensated by economic and non-economic benefits of a monetary union. The question that then arises is whether a EU-country that has come to the conclusion that its national interests are best served by joining EMU, should be allowed to enter the union without entry conditions being imposed.

The OCA-theory has very little to say about this question. The reason is that the traditional OCA-theory has disregarded the externality problem that originates from the decision of one country to join the union. This externality arises because the decision by one or more countries to join the union affects the costs and benefits of the union for the other member countries. The troublesome feature of this externality is that the entry in the union by one or more countries may reduce the benefits of the other potential members so much that these do not find it worthwhile to join the union if the former group becomes part of it. An example clarifies this. Suppose that one or more countries whose business cycles are negatively correlated with those of the countries inside the union decide to join the union. Whereas without the entry of these newcomers, consensus in the union central bank about the appropriate monetary policy could easily be achieved due to the high correlation of the business cycle, this may not be the case anymore once the newcomers are accepted. As a result, conflicts within the union's central bank concerning the appropriate monetary policy for the union may become endemic, leading to either paralysis or erratic behaviour, and therefore unpredictable monetary policies. Some countries may then decide that with these newcomers in the union the costs of the union will exceed the benefits.

In this connection, it may be interesting to refer to the history of the US Federal Reserve System. As is well-known, Friedman and Schwartz (1963) have argued that the Federal Reserve increased the intensity of the Great Depression by inappropriate policy responses to the banking crises. Less well-known is the fact that the Fed's policies were the result of internal conflicts between the different regional Banks facing different economic conditions. According to Friedman and Schwartz the New York Bank was ready to perform the

right open market operations to increase liquidity in the system. This was opposed by the other regional Banks, who "were parochial in both situation and outlook, (..) more concerned with their immediate regional problems" (p. 415). These conflicts could not easily be resolved and led to a paralysis in policy making preventing the Fed to intervene in a timely way to the banking crisis in 1929 and later also in 1933. In this view the severity of the Great Depression can be explained to a certain extent by the fact that asymmetric shocks occurred in the US (or at least a perception that these socks were asymmetric) leading to a breakdown in the consensus concerning the appropriate monetary policies within the Board of Governors.

The previous discussion allows us to conclude that the costs and benefits of the union for a particular member is not independent from the question who the other members of the union will be[9]. In particular, if these other prospective members are "too different" so that the probability of asymmetric shocks is high, the interest of the former country to team up with "these strangers" will be weak. It also follows that the decision about who should be in and who should be out cannot be but a joint decision. The issue then is which procedure should be followed in this joint decision making process. It is the merit of the Maastricht Treaty to have drawn up such a procedure. We analyse its problems in the next section.

3. THE PROS AND CONS OF A MINI CURRENCY UNION: THE MAASTRICHT TREATY

The Maastricht Treaty embodies the idea that entry into the union must be the result of a joint decision making procedure. The central ingredient of this procedure is the requirement that individual countries should force a number of their macro-economic variables (inflation, interest rates, budget deficits and government debt) to converge prior to entry towards norms as formulated in the Treaty. The surprising feature of these entry requirements is that they all relate to *macro*-economic variables, whereas the OCA-theory stresses *micro*-economic criteria for a successful monetary union[10]. As pointed out earlier, the OCA literature stresses the similarity of economic structures and labour market flexibility as

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[9] We come back to this issue when we discuss institutional reforms that can minimise these risks.

[10] Elsewhere I have argued that the Maastricht convergence criteria were introduced to give guarantees to Germany that EMU would low inflation EMU, and that it had little to do with monetary union per se (see De Grauwe (1996)).

important conditions for a successful monetary. The Maastricht Treaty focuses on the need to have macro-economic convergence prior to entry into the union as conditions for a successful future EMU.

This Maastricht approach to monetary union leads to several problems. One has to do with the fact that the convergence criteria may keep countries outside the union against their wishes for a long time, and for the wrong reasons. Second, the political economy of the Maastricht approach endangers the start of EMU.

3.1. The dynamics of convergence

The countries with weak reputation suffer from a double problem while they try to converge. Take the example of Italy (the same could be said about other mostly Southern European countries). Italy is forced to reduce its inflation rate *before* entering the union. Thus, it will have to do so carrying the burden of a low reputation. As a result, economic agents will be sceptical, so that inflationary expectations do not decline easily. This forces the Italian authorities to move the economy along a downward sloping short-term Phillips curve. Unemployment increases. In this strategy, ultimate success is not guaranteed. It is likely that the Italian authorities fail to acquire the same low inflation reputation as the German authorities. As a result, Italy never quite reaches the same low inflation equilibrium as Germany. Since the Maastricht Treaty also requires Italy to peg its exchange rate, the lira experiences an increasing real appreciation during the transition, leading to doubts that this dis-inflationary process can be sustained[11]. Speculative crises are set in motion, forcing devaluations of the lira. These devaluations lead to renewed divergencies of inflation. In order to qualify for entry, Italy will have to start a new process of dis-inflation. The cycle can start all over again.

A similar problem arises with the budgetary convergence. Consider countries with weak budgetary performance (Italy, Sweden, Belgium). As long as they are kept out of the union,

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[11] See De Grauwe (1994) for evidence about the difficulties of disinflation by pegging the exchange rate. Many countries have encountered these problems of real appreciation during the disinflation process. It has to do with the fact that the inflation rate in countries with poor inflation reputation does not decline instanteneously when the exchange rate peg to the low inflation country is started. As a result, during the disinflationary process, a positive (albeit declining) inflation differential is maintained between the high-inflation country and the country to whose currency the peg is done. This in turn leads to an increase of the price level of the high inflation country relative to the other. In other words, there is a real appreciation of the high inflation country.

doubts exist about their entry into the union. As a result, devaluation risks are installed in the interest rates of these countries with high government debts and deficits. These devaluation premia keep the long term interest rates high and therefore make it difficult to reduce the burden of the government debt. Thus, the fact that countries with weak public finances are kept outside the union makes their public finances worse, and makes budgetary convergence more difficult.

This problem is made worse in countries that combine a poor budgetary reputation with a poor inflation reputation. For during the dis-inflationary process the real interest rate in these countries is likely to increase. The reason is that, as the dis-inflationary strategy is not fully credible, the decline in the observed inflation is not matched by a decline in the expected inflation. As a result, the nominal interest rate does not decline in the same proportion as the decline in the observed inflation rates. Put differently, when dis-inflationary policies suffer from poor credibility, the ex post real interest rates are likely to increase, thereby also increasing the debt burden of the government. One can conclude that the Maastricht convergence requirements increase the costs of the debt reduction.

All this creates doubts about the possibility of meeting the Maastricht targets and is likely to induce speculative crises, which in turn raises the interest rates in countries with weak public finances. The troublesome aspect of these speculative crises is that they may become self-fulfilling. This then validates the doubts about these countries' ability to meet the Maastricht criteria. The whole process of convergence may actually impede a quick reduction of inflation and budget deficits.

If this is a correct characterisation of the convergence dynamics for countries like Italy then it also follows that allowing these countries into the union without imposing prior convergence requirements would facilitate their convergence. In particular it would make it easier for these countries to reduce their budget deficits and to start a program of debt reduction. In order to illustrate this, we made the following calculations for three highly indebted EU-countries, Belgium, Italy and Sweden. We computed the differential between the interest rate on domestic government bonds and the interest rate on bonds issued by the same governments in German Mark. This differential measures the pure devaluation risk (and not the default risk since the issuing government is the same). It is shown in the first column of table 1. In a monetary union this differential will disappear. Its existence today adds a burden on the government budget of these countries. The burden of the debt is measured by the real interest rate, however. Therefore the relevant comparison is the real interest differential. We show this in column 2. We observe that the real interest

differential is higher than the nominal one in the case of Belgium. This has to do with the fact that the inflation rate is lower in Belgium than in Germany. The opposite occurs in the case of Italy and Sweden. It can be expected that in a monetary union these inflation differentials will disappear. Thus, the observed real interest differentials measure the additional real burden of the debt in Belgium, Italy and Sweden resulting from the absence of a monetary union. The final column then gives us an indication of the reduction of this debt burden (as a % of GDP) resulting from entry into the union by these countries. We obtain these measures by multiplying the real interest differential by the debt to GDP ratio. It can be seen that this relief in the debt burden is substantial. Allowing these countries into the monetary union would make it easier to reduce their budget deficits to a level close to the 3% Maastricht norm. Paradoxically, therefore, allowing these countries into the union without imposing that they fulfil the 3% norm prior to entry would actually allow these countries to meet the 3% norm more easily. In this sense it can be said that the imposition of the Maastricht convergence conditions makes convergence difficult[12].

Table 1: Interest differential between domestic currency and DM bonds (10 year) issued by Belgian, Italian and Swedish governments (end 1995) and debt burden

	Interest differential		Debt/GDP ratio	Reduction in debt burden (in % of GDP)
	nominal	real		
Belgium	0.50	1.0	140 %	1.4 %
Italy	4.60	1.9	123 %	2.4 %
Sweden	3.40	2.2	85 %	1.9 %

Source: JP Morgan, Global Markets, November 1995 and EC, European Economy.

An important implication from the preceding analysis is that the dynamics of the Maastricht convergence criteria creates a great risk of splitting the European Union apart. For the same reasons as some countries will find it difficult to converge in time to enter EMU on January 1, 1999, they will find it difficult to converge afterwards. The same dynamics which makes convergence for countries with a weak budgetary and/or

[12] It is sometimes suggested that countries like Belgium, Italy and Sweden could solve the unfavourable debt dynamics arising from being kept outside the monetary union by issuing bonds in DM (or in the union's common currency). This does not, however, solve the problem. For, when the DM (or the union's currency) appreciates vis a vis the BF or the Lira, the real burden of the Belgian and the Italian government debt increases. This problem is avoided if these countries are allowed into the union.

inflationary reputation difficult today, will apply after 1999. As a result, those who are left out in 1999 may in fact be left out for a long time. A significant number of countries that today lack the anti-inflationary credibility, may actually find it extremely difficult to converge to the union members precisely because they are left out. Such a situation will be very divisive for the European Union. This division of the European Union will create problems not only for the countries left out, but also for those who start the union. The exchange rates between the countries left out and the union members are likely to be volatile, creating distortions in trade flows, and undermining the single market program. Instead of promoting integration, a two-speed Europe is more likely to lead to a setback in the existing level of economic integration.

Does all this mean that countries should be accepted into the union unconditionally? In the previous section we have argued that the decision about the membership of the union must necessarily be a joint decision because the cost benefit calculus of each potential member of the union is influenced by the question who will be the other members. Therefore, some mutual consensus about the membership issue must be achieved. We have argued, however, that the Maastricht selection procedure carries the danger of splitting the European Union apart because of its concentration on macro-economic convergence, and the difficulties in controlling the dynamics of these variables.

It can also be argued that these macro-economic convergence requirements have very little to do with the successful operation of a monetary union. The latter is conditioned on micro-economic criteria as identified by the OCA-literature. There is very little reason to believe that the Maastricht convergence requirements constitute the right selection mechanism to identify the countries that are fit to be part of the monetary union and those that are unfit. The Maastricht convergence requirements can only be understood by the guarantees that have to be given to Germany that the future monetary union shall produce low inflation and thus monetary stability. In the next section we analyse whether these convergence requirements can satisfy Germany in its desire for low inflation in the future EMU.

3.2. Convergence criteria and monetary stability in EMU

We analyse the *inflation convergence* criterion first. The argument that the inflation convergence criterion is a necessary entry condition to guarantee a low inflation in the future EMU can be phrased as follows. Countries have different inflation reputations. Germany, for example, has established a reputation of low inflation, Italy on the other hand has acquired a less favourable reputation concerning inflation. When these two countries form a monetary union the new union's inflation reputation will reflect an average of Germany's and Italy's reputations. As a result, the union's inflation rate is likely to be higher than the one observed in Germany but lower than the one in Italy.

Clearly the monetary union could live with that. The problem is that Germany is unhappy with this outcome because it has to accept a higher inflation rate. It will therefore insist that the future monetary union should not have an average inflation which exceeds the German one. In fact Germany is likely to make its participation conditional on this outcome.

The inflation convergence criterion can now be understood as a mechanism that requires Italy to establish a more favourable inflation reputation prior to entry. This it should do by reducing its inflation rate outside the union, on its own. If this is costly for Italy, this is all the better, because it shows that the Italian authorities are willing to change their priorities so as to acquire a better reputation. Once Italy has achieved this better reputation, it can be left into the union without endangering the reputation of the countries inside the union. The monetary union can then develop into a low inflation zone. (This argument is developed more formally in Morales and Padilla (1994), Winkler (1995)).

A similar argument can be developed to justify the *budgetary norms* (3% budget deficit and 60% debt-to-GDP ratio). The authorities of countries with high government debt ratios have incentives to create surprise inflation rates so as to reduce the real burden of the government debt. If these countries are accepted into the union they will push for higher inflation rates than countries with lower debt ratios thereby increasing the average inflation rate in the union. In order to avoid this, the high debt countries will have to reduce their debt to GDP ratios prior to entering the union[13].

[13] Note that this does not yet establish the need for the numbers 3 and 60. The arbitrariness of these numbers has been justly criticised, see Buiter and Corsetti (1993).

We conclude that an argument can be made for imposing prior convergence of inflation, budget deficits and government debts in order to ensure that the future monetary union will exhibit low rates of inflation. The argument, however, suffers from a defect, which can be formulated as follows: The convergence criteria provide no guarantees for lower inflation in the future EMU. The reason is the following. The convergence dynamics can be seen as a game in which countries are rewarded by following a painful dis-inflationary policy. Failure to reduce inflation carries a harsh punishment, i.e. exclusion from EMU. This gives countries strong incentives to comply and to institute dis-inflationary strategies (at least those countries who deem the permanent benefits of joining EMU to exceed the temporary costs of a dis-inflationary strategy). Once these countries are admitted into the EMU, however, the nature of the game, i.e. its reward/punishment structure, changes fundamentally. Suddenly the punishment vanishes. This must have important effects on countries' behaviour once they are in the union. In particular, those countries that initially were "softer" on inflation are likely to exhibit these same preferences in the EMU. One can make the argument, of course, that the convergence process that they had to go through prior to entry may have changed their preferences and may have converted them to low inflation preferences. This, however, is a very tenuous assumption. It is more realistic to assume that these countries will revert to their prior preferences. We conclude that the convergence criteria *per se* do not guarantee a low inflation in the future EMU. The only guarantee can come from the nature of the institutions that will be set up in the future EMU and that may give more or less incentives to maintain low inflation. We will return to this issue in a later section .

3.3. The Political Economy of a mini currency union

In the previous sections we have argued that the Maastricht strategy may create a mini currency union, whereby a number of EU-countries, mainly Southern EU-countries, will be barred from entry for a long time. This will happen against the wishes of these countries, some of them are very much convinced that they belong to the EU optimum currency area. This situation will create a political problem, which will make this scenario of a mini currency union highly unlikely. In this section we pursue this issue.

As is well-known, the decision to allow individual countries into the EMU will be made by qualified majority (Maastricht Treaty, Article 109 j 4). Table 2 gives the distribution of the votes in the Council of Ministers. It can immediately be seen that the four Southern countries (Italy, Spain, Portugal and Greece) have a blocking minority of 28 votes. In addition,

there are other minimal blocking minorities of countries that are likely to be left out in the Maastricht scenario. These are the following:

Italy, Spain, Portugal, Sweden
Italy, Spain, Portugal, Finland
Italy, Spain, Greece, Sweden
Italy, Spain, Greece, Finland

Thus, there is a wide scope for coalition building by the losers in the Maastricht game. In other words, the countries that are commonly considered to be forming the hard core and to start the mini currency union in 1999 (Germany, France, Benelux, Austria, Ireland) will need the approval of the "losers" who can form various coalitions to block the entry of one ore more of the hard core countries. The question then is whether there will be objective grounds for the losers to exert their negative voting power? The answer is most likely positive.

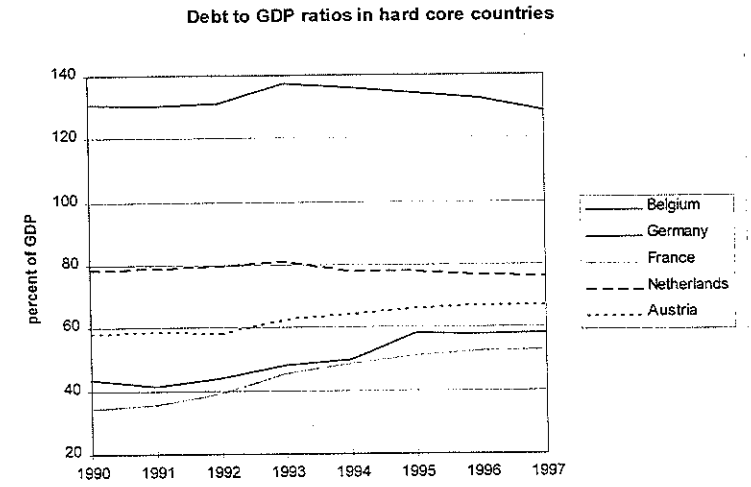
The probability that one or more of the hard core countries will not satisfy one or more of the Maastricht criteria now looks increasingly likely. Core countries like France and Germany find it quite difficult to bring their government budget deficits to the 3% norm, and face the possibility that they may fail to do so in 1997. The debt to GDP ratio will represent an even more serious problem for a number of core countries. We will, therefore, concentrate the discussion on this debt-to-GDP ratio. The Maastricht Treaty says that if the debt to GDP ratio exceeds 60% it should "diminish sufficiently" and "approach the reference value (60%) at a satisfactory pace" (Article 104 c 2).

In figure 1 we show the debt to GDP ratios of the hard core countries up to 1997. The year 1997 is obtained by assuming that the countries will satisfy the 3% deficit criterion (something which is far from certain for some these countries). In addition, we assume a nominal growth rate of GDP of 5% (which is higher than the 1996 projected growth rate of nominal GDP). Thus, we assume relatively favourable developments that should contribute to reducing the debt to GDP ratios. From figure 1 we observe that three of the hard core countries are almost certainly going to fail the debt to GDP criterion. One will need a great amount of imagination to claim that the debt to GDP ratios of Belgium, the Netherlands and Austria have "diminished sufficiently" and "have approached the reference value (60%) at a satisfactory pace". In the case of Austria no decline is visible. In the case of Belgium and the Netherlands the yearly decline since 1993 is of the order of 1 to 2% per year.

Table 2: Distribution of votes in the Council of Ministers

Germany	10
France	10
Italy	10
UK	10
Spain	8
Belgium	5
Greece	5
Netherlands	5
Portugal	5
Austria	4
Sweden	4
Denmark	3
Finland	3
Ireland	3
Luxembourg	2
Total	87
Qualified Majority	62
Blocking Minority	26

Figure 1:



Source: European Commission, European Economy

In order to see what the pace will be with which the debt to GDP ratio of these two countries "approaches the reference value" of 60 % we simulated the future debt to GDP ratio of Belgium and the Netherlands (after 1997), assuming that these countries reach and maintain their government deficit at 3% of GDP (as required by Maastricht). In addition, we assume that the nominal growth rate of their GDP will be 5% per year (which exceeds the average yearly growth rate during the 1990s)[14]. The results are shown in table 3. It can be seen that in the case of Belgium it takes more than 10 years to reach the 100% level. It takes another 40 years to "approach the reference value" (if this is interpreted to mean dropping below 70%). In the case of the Netherlands the reference value is approached quicker (given the more favourable starting position). Nevertheless it takes more than 10 years to reach 70 %. Thus, even if these two countries achieve the 3% budget deficit norm in 1997 and keep it fixed from then on, the implied future path of their debt to GDP ratio is

[14] The formula is well known:

$b_t = b_{t-1} + (d_t - b_{t-1}\, g)/(1+g)$

where b_t is the debt to GDP ratio in period t, d_t is the government budget deficit (% of GDP) in period t, g is the growth rate of nominal GDP.

one of an exceedingly slow pace of approaching the reference value. In the case of Austria there will be no evidence of a decline in the debt to GDP ratio in 1997.

Table 3: Simulated debt to GDP ratio of Belgium and the Netherlands
(deficit = 3%; nominal growth GDP = 5%)

	Belgium	Netherlands
1997	130	78
2010	97	70
2020	83	66
2030	74	64
2040	69	62
2050	65	61

Source: Own calculations

Certainly, the losers will have a strong legal basis to claim that Austria, Belgium and the Netherlands do not satisfy the Maastricht criterion concerning the debt to GDP norm. In order to let these hard core countries pass the Maastricht entrance exam, therefore, it will be necessary to declare that one of the Maastricht criteria is not to be taken seriously. This, however, will open the door to similar interpretations of other Maastricht criteria. For example, the losers will be able to claim that the interest rate criterion is completely arbitrary due of its self-fulfilling nature: Because these countries are believed not to be accepted in the future EMU, their interest rates are high, thereby validating this belief. Conversely, a decision to allow these countries into EMU would more easily lead to interest rate convergence. What matters here, however, is not so much the fact that there will be equally good grounds to make exceptions for the application of the debt to GDP ratio as for the application of other convergence criteria, the economic basis for which is even weaker that that of the debt to GDP ratio. More important is the fact that such selective interpretations will unravel the whole Maastricht convergence game.

From the previous discussion we conclude that the mini currency scenario that many observers today (including the financial markets) seem to take seriously is very unrealistic (see Favero, Giavazzi and Spaventa (1995) on this). The scenario of a mini currency union will almost certainly be blocked by the countries barred from entry, and they will have good legal and economic grounds to do so. The choice the EU-countries, therefore, will

face in 1999 is to start a *maxi* currency union, which allows the entry of Southern European countries, or to postpone the union. The way this choice is made depends crucially on the attitude of Germany. In the next section we analyse this issue.

4. THE OPTION VALUE OF WAITING FOR GERMANY

The cost-benefit structure of EMU for Germany is particularly asymmetric, creating strong incentives to wait. These incentives will be enhanced when Germany is forced to choose between a maxi currency union or postponement. In box 1 we develop a simple model applying the theory of options and we come to the conclusion that Germany's welfare can be improved by waiting and postponing the start of the union. The intuition of this result can be explained as follows.

The costs and benefits of monetary union for Germany are asymmetric. The benefits consist of the usual gains of a monetary union (lower transactions costs, elimination of exchange rate uncertainty and of misalignments of exchange rates). The costs consist of the (uncertain) higher future inflation in EMU than in Germany. If we subtract these from the gains, we obtain the return of EMU for Germany. There is, however, another component of the costs. When Germany enters the union, it looses its power to determine monetary conditions in Europe. In addition, abandoning the mark can be seen as abandoning a brand name which has been costly to establish. Both the loss of monetary hegemony in Europe and the loss of a brand name can be considered as sunk costs for Germany. These sunk costs are carried up front, i.e. at the start of the union. The benefit of EMU, however, is a yearly (uncertain) return. This structure of costs and benefits creates the conditions in which waiting has a positive value for Germany[15].

To see this, suppose Germany enters the EMU on January 1, 1999. This implies an immediate and irreversible loss of power and brand name (the sunk costs) for Germany. Assume that the present value of the future net return of EMU exceeds this cost. One may think that this is a sufficient reason for Germany to enter the union on January 1, 1999. This is,

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[15] It could be argued that other countries also face an asymmetric structure of costs and benefits. For they also loose their monetary policy instrument when joining the union. The situation of the other countries is different, however, because most countries have already lost monetary control to the benefit of Germany. In addition, they do not face the same loss of brand name when they abandon their currency.

however, unlikely to be the case. The yearly future return is uncertain. By waiting, say, two years Germany obtains more information about the commitment of the other potential members towards low inflation, and therefore about the net return of EMU for Germany. If it turns out that this return is high enough, the fact of having waited two years implies a loss of only two years of return. If on the other hand, it turns out that the return is low (because of a weak commitment to low inflation and to low government debt by the other members) Germany will have avoided the large sunk cost by waiting. This means that waiting has a positive value for Germany. As a result, this country will have a strong incentive to postpone the start of EMU.

One may object here that Germany cannot decide to postpone the start of EMU since the dates and the procedures for starting EMU have been set in the Maastricht Treaty. This is, however, a superficial objection. The Treaty provides a lot of leeway in interpreting these procedures. Take, for example, the debt to GDP ratio. According to the Treaty, and as mentioned earlier, the debt ratio should decline "sufficiently" and approach the reference value (60%) at a "satisfactory pace". Such wording was introduced in order to allow for some flexibility. It can, however, also be used to argue for postponement. As shown earlier, many countries will not have reached the 60% reference value, and it will be possible to argue that the decline is not sufficient or has not proceeded at a satisfactory pace. From the point of view of the German authorities, waiting a little longer to see how the debt ratios evolve makes perfect sense, given that this country attaches so much importance to the budget indicators as signals of a commitment to low inflation policies. In addition, by postponing EMU it can prolong the monitoring of the others so as to reduce the risk that they will act opportunistically.

Box 1: The incentives to postpone EMU

We consider the decision to enter the monetary union by Germany as an investment decision. Let us call R the net yearly (uncertain) return from monetary union. It consists of two components, i.e.

$$R = S - P \qquad (1)$$

where S is the traditional benefit from monetary union (lower transactions costs, less exchange risk) and P is the loss for Germany arising from expected higher yearly inflation rates in EMU than in Germany. We assume that this cost is uncertain. However, Germany acquires more information about the size of this expected inflation as time goes on. This information is obtained from the trends in budget deficits and debt ratios.

Germany also bears another cost when entering the monetary union. This is the loss of its brand name, the German mark, and the loss of power in determining monetary affairs in Europe. This cost can be considered as a sunk cost. Let us call this cost K. It is borne at the moment Germany enters the union.

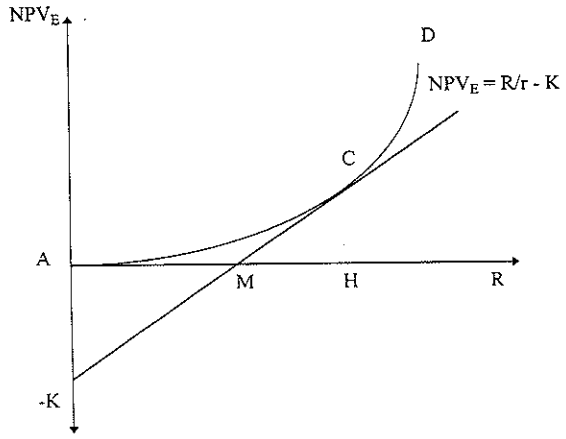
For EMU to be interesting for Germany the following condition must be satisfied:

$$R/r - K > 0 \qquad (2)$$

where r is the discount rate, so that R/r is the present value of the future expected yearly returns of the monetary union. (R/r - K) can then be interpreted as the net present value of the EMU for Germany (NPV_E). This should be positive to induce Germany to enter the monetary union.

We represent this German cost benefit calculus graphically in figure 2. The vertical axis exhibits the net present value of EMU as defined in (2). On the horizontal axis we represent the expected yearly rate of return of EMU. The upward sloping line is the graphical expression of equation (2) When R exceeds M monetary union is profitable for Germany. It will be assumed that this is the case. Suppose therefore that R slightly exceeds M. Does this mean that it is in the interest of Germany to start the monetary union immediately? The answer is negative.

Figure 2: The option value of waiting for Germany



If Germany has the option to wait before making its final decision, the cost benefit calculus changes. For by waiting one period Germany obtains better information about R. If after one

period R exceeds M, the net present value of EMU is positive and Germany starts the union. If, after one period, R is below M, Germany does not start the union so that the net present value of the union is zero. This waiting strategy therefore has a higher net present value today than starting the union immediately as soon as R exceed M. We show the net present value of this waiting strategy by the curved line ACD[16]. Thus, even if today R slightly exceeds M, it pays for Germany to wait. Only when R exceeds H will it be optimal for Germany to start the union immediately. Put differently, the expected rate of return must exceed the minimum required rate of return by a wide margin. This margin (H-M) depends on the uncertainty of the expected return R. The greater this uncertainty, the greater is this margin and therefore the value of waiting for Germany.

The reader familiar with option theory will have recognised our formulation as just an application of option pricing. Germany has the option to enter the union. The exercise price of this option is K (the sunk cost). It would not be optimal for Germany, however, to exercise this option when R remains below H because the value of this option is higher than the intrinsic value of the project (the net present value NPV_E). In other words it is not rational for Germany to start the monetary union immediately even if the net benefit of EMU is positive.

5. THE DEBT TO GDP RATIO AND THE EUROPEAN POLICY MIX

In section 3 it was argued that the Achilles heel of the Maastricht convergence criterion is the debt to GDP ratio. Many countries will not satisfy this criterion, providing the legal basis for the countries excluded from EMU to use their blocking minority power.

It can be argued that the difficulties EU-countries encounter to reduce their debt to GDP ratios has something to do with the fiscal-monetary policy mix pursued in the EU during most of the 1990s. This policy mix has been characterised by budgetary and monetary restriction. Only recently, monetary policy in Europe has become more expansionary following the lead given by the Bundesbank to relax monetary policies The result of this policy mix is that the budget cutting policies have been performed in an environment of low nominal growth of GDP. Thus, the effect on the debt ratio of the reductions of the budget deficits (the numerator) have been pretty much offset by the decline in the nominal growth rates of GDP (the denominator) during the 1990s. The problem is illustrated in figure 3 which presents the average debt to GDP ratio in the EU during the 1990s together with the average government budget deficits in the EU. It can be seen that this ratio has

[16] See A. Dixit (1992) for a derivation of this curve in the context of an optimal investment policy.

continued to increase even after 1993 when the government budget deficits started to decline from a high level of more than 6% of GDP to less than 4%.

In order to separate out the effect on the debt ratio of declining nominal growth rates of GDP during the 1990s, we computed the debt to GDP ratio, assuming that the nominal growth rate would have remained at its 1990 level, and using the observed budget deficits. This hypothetical debt ratio tells us how the debt ratio would have evolved in an environment of higher nominal growth rate and assuming that the authorities would have followed the same budget deficit policies as those observed during that period. We subtract the growth of this hypothetical debt to GDP ratio from the observed growth in the debt to GDP ratio, and obtain the increase in the debt to GDP ratio which can be attributed to the declining nominal growth rates of GDP during the 1990s[17]. We show the results in figure 4.

The dotted line shows the trend in the debt ratio that can be attributed to the decline in the nominal growth rate of GDP during the 1990s. The heavy line shows the trend in the debt to GDP ratio that can be attributed to increasing/declining budget deficits. It can be seen that up to 1993 both the low growth of nominal GDP and the increasing deficits tend to drive up the debt to GDP ratio. From 1993, however, government budget deficits tend to decline and contribute to a reduction of the debt-to-GDP ratio. This effect, however, is more than compensated by the low growth rates of nominal GDP which continue to push up the European debt to GDP ratio, at least until 1995.

The extent to which the monetary-fiscal policy mix followed by many EU-countries is responsible for the low nominal growth rates of GDP in the EU is a matter of controversy. It is not unreasonable, however, to formulate the hypothesis that this policy mix contributed to making the restrictive fiscal policies particularly ineffective in reducing the debt to GDP ratio. A more stimulatory monetary policy would most probably have helped to making the policies of cutting budget deficits more effective in reducing the debt ratios[18].

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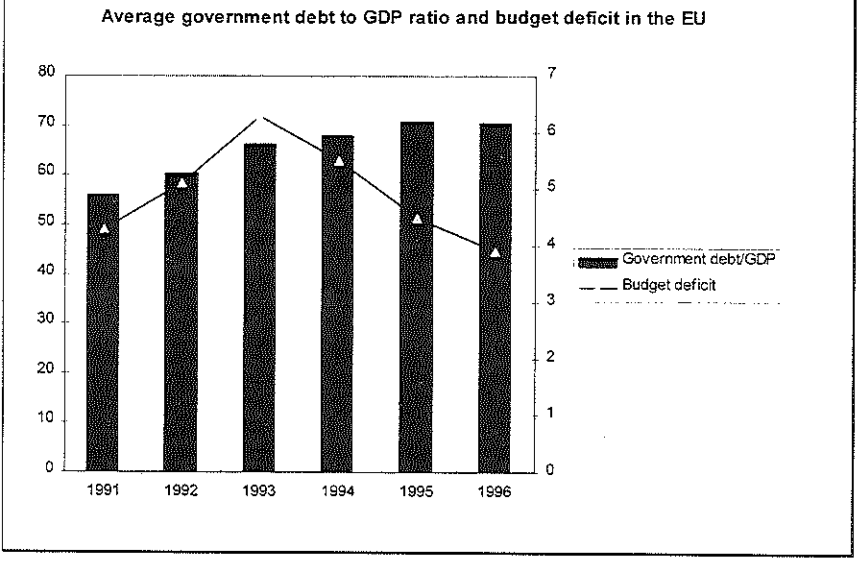
[17] We are aware that there is an interaction between the growth rates of nominal GDP and the budget deficits. The exercise presented here gives us some rough indication of the importance of growth for the evolution of the Debt to GDP ratio. For a more sophisticated analysis using an econometric model. See Hughes Hallett and McAdam (1996) who analyse the effects of different policy mixes on the debt to GDP ratio

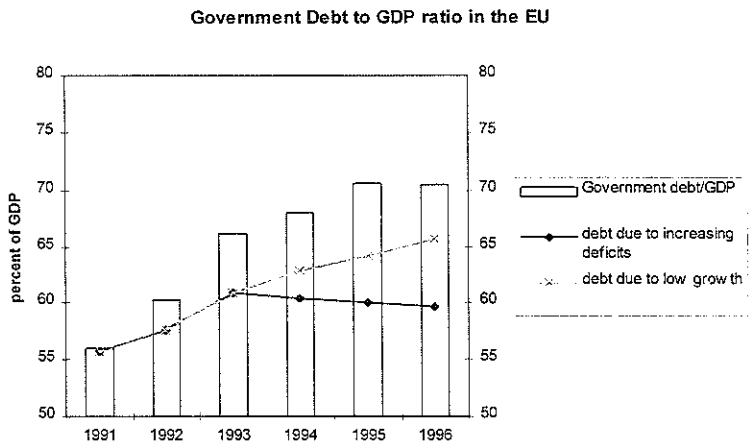
[18] See Hughes Hallett and McAdam (1996). Their conclusion based on simulation of a full-fledged econometric model is that the Maastricht debt criterion will be hard to reach unless monetary policies become more accommodating.

Figure 3:



Source: European Commission, European Economy.

Figure 4:



Source: European Commission, and European Economy.

6. CONCLUSION: ALTERNATIVE APPROACHES TO MONETARY UNION

In the previous sections it was argued that the Maastricht dynamics towards monetary union will force Germany to choose between a maxi currency union or a postponement of EMU. The choice between a mini-union or a larger one will simply not exist. This creates the risk that the forces for postponement will be overwhelming. How can Germany be convinced to start a maxi union anyway? It is clear that the only way the German public can be convinced that entering the union will not jeopardise monetary stability (low inflation) is by presenting sufficiently strong guarantees that the future EMU will not be inflation-prone. We have argued that the convergence criteria cannot give these guarantees. The only guarantees can come from steps towards institutional strengthening of the monetary union. This can be achieved in several ways. One foresees that countries who fail to satisfy the budgetary norms would not obtain a voting power on the board of director of

the ECB[19]. Thus, countries like Italy, Belgium, Sweden, and others would be accepted into the union. However, as long as their budgetary house is not in order, these countries would not be allowed to take part in the decision process of the ECB. As a result, there should be no fear that heavily indebted countries may push the ECB to pursue too expansionary monetary policies. The paradox we have discussed in the previous sections can be resolved. By allowing highly indebted countries into the union, debt reduction targets become easier to achieve. At the same time the fear that these highly indebted countries may induce an inflationary bias to the union is allayed. This fear has been one of the main stumbling blocks for low inflation countries to allow countries following unorthodox fiscal policies in the union.

A second institutional strengthening consists in defining and enforcing a procedure for removal of the Executive Board of the ECB should it fail to maintain price stability. Such a procedure would do much more to ensure price stability in the union in, say, the year 2010 than the insistence that countries reduce their inflation rates and their budget deficits in the second half of the 1990s, before the union starts. Such a reform also goes some way in making the future European Central Bank more accountable. In this context inflation targeting could be useful. Many central banks, including the Swedish central bank, now follow inflation targeting procedure. The ECB could similarly be required to use such a procedure.

Thirdly, the budgetary process in the different EMU-countries should be reformed so as to make it more transparet, and less prone to lead to unsustainable budget deficits. Recently, Eichengreen and von Hagen (1995) have formulated proposals aimed at making the budgetary process more streamlined in the European Union. In addition, they have proposed to institute National Debt Boards in each country, whose responsibility it would be to monitor the evolution of the national debt and to propose remedial action when particular targets are not met[20].

These are only a few proposals that follow the general principle formulated earlier, i.e. that less emphasis should be put on convergence criteria and more on strengthening the future monetary institutions in the union. It is important to see this as a *quid pro quo*. By

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19 See Gros (1995) for a similar proposal.

20 The reform proposed by Eichengreen and von Hagen is a better approach than the so-called stability pact of the German Minister of Finance. The use of excessively high financial penalties imposed on countries who are found to be in excessive deficit, has made the stability pact proposal a non-starter.

strengthening the institutions of the future EMU the German public can be convinced that the future monetary union will provide for low inflation. This then makes it possible to relax the convergence requirements (which, we have argued provides few guarantees for Germany). The relaxation of the convergence requirements then reduces the risk that the European Union will split into two parts, producing great economic and political strains.

It should be stressed that this shift in emphasis can be achieved within the framework of the Maastricht Treaty. In other words, it does not require a renegotiating of the Treaty. As mentioned earlier, the wording of the Treaty allows for a lot of flexibility in the interpretation of the convergence criteria (especially the budgetary ones). Thus, if the political will is present a flexible interpretation of the convergence criteria is certainly possible. At the same time the institutional strengthening proposed here can be achieved by negotiating additional protocols, much in the same way as the German Minister of Finance has proposed when he launched his so-called stability pact.

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