

The Economic Consequences of a Large EMU - Results of Macroeconomic Model Simulations

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Abstract

Recent economic forecasts increase the probability that firstly, the EMU can start as planned on January 1, 1999 and secondly, that it will start with a large group of countries. The economic implications of the artificial unification of "hard-currency" and "soft-currency" countries are analysed by means of macroeconomic model simulations. The results of a large "non-optimal" EMU are as expected. On the one hand, there are positive income effects for all countries - although unevenly distributed over the participants - on the other hand, the internal (inflation) and external (value of the Euro vis-à-vis the Dollar) stability are at risk. The "hard-currency" group will be the major winner (in terms of real GDP and employment), whereas the "soft-currency" group has to carry the adjustment costs to a regime of fixed exchange rates (Euro) which results in slower growth, decline in employment and a deterioration of their budgetary position. The necessary convergence of prices and interest rates leads to an increase (decrease) of inflation and interest rates in the "hard-currency" countries ("soft-currency" countries). If the EMU will start with a large group there will be a tendency to devalue the Euro against the Dollar. As a consequence of the uneven economic performance of a large (non-optimal) EMU I would suggest to start the EMU with a core group of "hard-currency" countries. After this mini EMU succeeded the other Member States could join the EMU.

Kurzfassung

Die jüngsten Wirtschaftsprognosen erhöhen die Wahrscheinlichkeit, daß die WWU erstens wie geplant am 1. Jänner 1999 beginnen kann und zweitens, daß sie mit einer relativ großen Zahl von Mitgliedern beginnt. Die wirtschaftlichen Folgen eines solchen künstlichen Zusammenschlusses von "Hartwährungs-" und "Weichwährungsändern" werden mittels makroökonomischer Simulationen analysiert. Die Ergebnisse einer solchen "nichtoptimalen" WWU sind wie erwartet. Einerseits treten positive Wachstumseffekte ein - obwohl nicht alle Länder gleichmäßig gewinnen - , andererseits ist sowohl die interne (Inflation) als auch die externe Stabilität (Wert des Euro) in Gefahr. Die "Hartwährungsänder" werden die Hauptgewinner sein (sowohl hinsichtlich der Zuwächse des realen BIP als auch der Beschäftigung). Die hohen Anpassungskosten der "Weichwährungsänder" spiegeln sich in geringeren BIP-Gewinnen, in Beschäftigungsverlusten und in einer Verschlechterung ihrer Budgetposition. Die notwendige Konvergenz von Preisen und Zinsen führt dazu, daß es zu einem Anstieg (Sinken) in den "Hartwährungsändern" ("Weichwährungsändern) kommt. Wenn die WWU mit einer großen Gruppe von Ländern beginnt, kommt es sehr wahrscheinlich zu einer Abwertung des Euro gegenüber dem Dollar. Wegen der zu erwartenden ungleichen wirtschaftlichen Entwicklung in einer (nichtoptimalen) WWU würde ich empfehlen, daß die WWU mit einer kleinen Kerngruppe von "Hartwährungsändern" beginnt. Wenn sich herausstellt, daß diese Mini-WWU erfolgreich ist, wäre es ein Anreiz für die anderen EU-Mitgliedstaaten, der WWU beizutreten.

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1

1. Introduction

According to the latest examination of the economic situation of the European Union in the light of the Spring 1997 economic forecasts of the Commission's services, the Member States made further progress towards meeting the convergence criteria and there are good prospects for a majority of countries to be ready to participate in monetary union from 1 January 1999. With the exception of Greece and Italy all Member States would be ready to start with the EMU. This rather optimistic prospects by the Commission contrast sharply with the doubts expressed in many Member States about their own capability to meet the Maastricht criteria. If, however, the considerable efforts to cut down the budget deficits and to keep public debt from increasing are successful the EMU project can start as planned.

As the probability increases and the political will becomes firm that the EMU will start with a great number of EU countries it is worthwhile to analyse the economic consequences of a large EMU. This examination is done by means of macroeconomic model simulations. Such experiments should also help to answer the old question whether EU-15 is already an optimum currency area. In chapter 2 the political considerations are confronted with the economic arguments on the optimality of a monetary union. Chapter 3 describes the model experiments and the results. Conclusions are drawn in chapter 4.

2. Political versus Economic Optimality of the EMU

2.1 Political Considerations

According to the logic of European integration after World War II establishing the EMU finishes the process of economic integration. Comparing the Single Market of the EU with those of the United States, many economists would agree that "one market" only works properly with "one money". Apart from the economic logic of a single currency in a single market the EMU project is a highly political one. The creation of the EMU in 1999 can be compared in its political implications to the creation of the European Coal and Steel Community (ECSC) in 1951. In both cases we can witness the "Jean Monnet" effect: Pushing political integration indirectly by means of economic integration!

From a political perspective the ideal EMU should comprise all 15 Member States of the Union. Only in this case the danger of a Europe "a deux vitesses" can be ruled out. However, a differentiated integration is already anticipated in the Maastricht Treaty. Although in the last few years a tremendous convergence has taken place as far as the relevant macro variables inflation, interest rates, budget deficits and public debt are concerned. Nevertheless, even the most optimistic forecasts for the year 1997 indicate that not all EU Member States will be able to fulfil the convergence criteria, in particular those concerning the fiscal criteria (budget deficit and public debt). Therefore, the convergence criteria define the dividing line between the "pre-ins" and the "outs" when the Council, meeting in the composition of the Heads of State or Government (Art. 109j(4) EC Treaty) has to decide by a qualified majority in Spring 1998 which country can participate. Although this decision is taken on the basis of the reports by the Commission and the EMI it will be a highly political decision.

If, however, the political desire for creating an as large as possible EMU right from the beginning jumps ahead of economic capability of the EU countries to meet the criteria of an optimum currency area the working of the Single Market is not improved but in danger.

2

2.2 Latest Economic Forecasts Increase the Probability of a Large EMU

The latest Spring 1997 economic forecasts by the OECD and the European Commission confirm further progress towards economic convergence in the European Union. Member States have been taking impressive efforts to reduce excessive levels of government borrowing, in particular since 1995/96. However, the simultaneous implementation of budgetary measures to cut public deficits have not only resulted in a decline in inflation and in long-term interest rates but have reduced real aggregate demand considerably. According to OECD model simulations (OECD (1996, p. 18 ff.)) the loss of aggregate demand amounts to around one percentage point of real GDP in the years 1996 and 1997. As a consequence of the reduction of domestic demand (theoretically speaking the right-ward shift of the IS curve in the Mundell-Fleming model) one can expect, that the level of interest rates comes down. This in turn will lead to a stimulation of investment as of beginning of 1998/99 and hence will result in an upswing in Europe.

In Spring 1998 the Council decides about the participants in the EMU on the basis of the economic data for the year 1997. If one takes the rather optimistic Spring 1997 forecasts by the European Commission for the year 1997 (see [Table 1](#)) at face value two questions which occupied the discussion recently can be answered definitely: a) the EMU will start according to the time schedule worked out at the Council meeting in Madrid in December 1995, namely on 1 January 1999; b) with great probability there will be a start with a large EMU.

Table 1

In a "strict" interpretation of the EC Treaty only three Member States (France, Luxembourg, Finland) would meet all the necessary convergence criteria in 1997. However, Art. 104c(2) of the EC Treaty allows a more "flexible" interpretation - in particular concerning the fiscal criteria. Accordingly, the ratio government deficit to gross domestic product should not exceed the reference value (3% of GDP), unless a) "either the ratio has declined substantially and continuously and reached a level that comes close to the reference value; or b) the excess over the reference value is only exceptional and temporary and the ratio remains close to the reference value". Similarly, the ratio of government debt to gross domestic product should not exceed the reference value (60% of GDP), "unless the ratio is sufficiently diminishing and approaching the reference value at a satisfactory pace".

Taking the Art. 104c(2) interpretation, according to the forecasts for the year 1997, the EMU could start with 10 to 11 Member States. Greece meets none of the five convergence criteria. Denmark and the United Kingdom may use their opting-out clause (Protocols 11 and 12 of the Treaty of European Union - TEU). Schweden, so far, has chosen not to participate the ERM of the EMS which, however is a precondition for taking part in the EMU. Whether Italy will be in the first round is more a political than an economic question. If the general government deficit is the most important criteria to look at then Italy will not yet reach the 3 per cent reference value in 1997. Then there remains a group of 10 Member States which could start with the EMU on 1 January 1999, namely Belgium, Germany, Spain, France, Ireland, Luxembourg, Netherlands, Austria, Portugal and Finland. It should be mentioned that the Spring 1997 forecasts by the OECD secretariat (not yet published) are much more cautious as far as the deficit reference values are concerned. Whereas the forecast by the EU Commission sees only Greece and Italy above the 3% reference value, the OECD forecasts that Belgium, Germany, Greece, France, Italy, Austria and the United Kingdom will have a general government deficit above the 3% reference value. More in line with the OECD figures than with those of the Commission are also the deficit forecasts by the IMF in its Spring 1997 forecast (IMF (1997)).

The trial selection of EMU candidates just made on the basis of economic forecast for 1997 would come close to the political ideal of a large EMU. However, one has to ask the question whether a large EMU would be also optimal in economic terms. This question will be tackled firstly by referring to theoretical arguments on the "optimum currency area" in the next chapter and finally by own model simulations in chapter 3.

3

2.3 What Tells Us Economic Theory about the Optimal Size of a Monetary Union?

Robert Mundell (1961) was the first who posed the question about the optimal size of a monetary area. He founded the so-called "optimum currency area" theory (OCA theory). With flexible exchange rates countries can compensate for external shocks. If two (ore more) countries fix their exchange rates (or form a monetary union) one of two things are required that one can speak of an "optimum currency area". First, member countries should be affected by economic shocks in similar ways ("symmetric shocks"). Or second, there must be an adjustment mechanism in order to compensate for "asymmetric shocks" (which affect different countries in different ways; e.g. like a rise in oil prices or the implications of German unification, etc.): flexible wages, highly mobile labour so that workers move from declining areas to expanding ones, or a more flexible fiscal policy. Although other authors stressed additional important factors - like the degree of openness (McKinnon (1963) or product diversification (Kenen (1969, 1995)) - labour market flexibility is still one of the

major criteria for defining an optimum currency area.

Graph 1

The trade-off between economic convergence and labour mobility can be illustrated in Graph 1 (adapted from DeGrauwe (1996a) and *The Economist*, November 9, 1996, p. 110). The bigger the differences between member countries (e.g., the economic divergence in terms of economic growth of real GDP), the more mobile labour must be if monetary union is to work. Below the AA line countries could form a monetary union without excessive adjustment costs, because labour flexibility is high. They would belong to an "optimum currency area". Countries above the AA line are confronted with high adjustment costs when forming a monetary union. These countries are characterized by low labour market flexibility (low wage flexibility, low labour mobility). This situation typically describes the economic situation of the labour market in Europe. The economy of the United States is not much more homogeneous than Europe's; but because labour is highly mobile there, its monetary union works. If there are "asymmetric shocks" a large or maxi EMU will work with less probability than a core EMU.

Numerous empirical studies (most of which are time series analyses of demand and supply shocks like the prototype study of Bayoumi-Eichengreen (1994); for an overview of empirical OCA studies, see Breuss (1997, chapter 7); see also Tichy (1996)) indicate that a large EMU comprising all 15 Member States of the EU are certainly not an "optimum currency area". The majority of these studies identify a core EMU as an "optimum currency area", mostly countries belonging to the DM block. Although the OCA theory has some appeal, it also has many drawbacks: a) The OCA theory does not supply a good theoretical foundation for the convergence criteria as formulated in the Maastricht Treaty (DeGrauwe (1996a)). b) The OCA theory mainly looks at the (adjustment) cost side of a monetary union and, hence, is a bad guide for choosing the potential participants in the EMU (DeGrauwe (1996b)). c) The OCA theory and its empirical tests are only concentrated on the past development. It says not very much about possible learning processes in the future (e.g. the adjustment in the wage policy when becoming a member of EMU; more wage flexibility etc.). As a positive example of such learning processes one could mention those countries which linked their exchange rates to the DM (like the Netherlands and Austria since 1981; for the Austrian experience, see Breuss (1992, 1996)).

3. Macroeconomic Effects of a Large EMU in Model Simulations

3.1 EMU - A Macroeconomic Project

In the following simulation experiment I will take into account the pros and cons of forming the EMU as postulated by many authors in the literature. One of the most prominent examples of such studies is that by the European Commission, titled "One market - one money" (EC, 1990).

The establishment of the EMU is primarily a macroeconomic project and implies two things:

1. "The adoption of the conversion rates at which the currencies of the Member States shall be irrevocably fixed and at which irrevocably fixed rate the ECU shall be substituted for these currencies, and the ECU (now - Euro, on 1 January 1999) will become a currency in its own right" (Art. 109l(4) EC Treaty). Which method will be used to define the conversion rates is still an open question. Three alternative procedures are possible: either the EMS central rates or the actual exchange rates at the end of 1998 or an average of some period before (the Lamfalussy formula). In the model simulations the EMU is portrayed by system of fixed exchange rates within the EU. The bilateral exchange rates of the Member States are fixed vis-à-vis the DM. Technically speaking, this implies that the DM is becoming the future Euro in the model context.

2. At the beginning of the EMU the autonomy of the national monetary policy is handed over to the European Central Bank (ECB). That means, starting on 1 January 1999 the monetary policy for the Euro is centralized for all Member States participating in the EMU.

3.2 The Model

For the model simulations, the Oxford Economic Forecasting - OEF model (OEF, 1996) is used. It was already used in a recent study to evaluate the impact of the EMU primarily on the Austrian economy (see Breuss (1997, chapter 3). It was also used to analyse the impact of the EMU on external trade relations with the Central and Eastern European countries (CEECs; see Breuss (1996b)). The OEF model is a multi-country model which comprises the major OECD countries plus China, the Eastern European countries and the developing countries as country blocks. The EU is represented by 9 Member States (the latest version - which I did not use in my simulation exercises - also includes the EU countries Denmark and Finland). Theoretically speaking it is a Mundell-Fleming type model with flexible exchange rates. It does not only model the usual demand components (consumption, investment, exports and imports) but also the supply side (production function, NAIRU, factor supply, productivity etc.). The exchange rates follow the portfolio approach. The bilateral exchange rates of the EU countries vis-à-vis the DM are explained by interest rate differentials and expectations about exchange rate changes. The exchange rate vis-à-vis the US-Dollar is linked to the determination of the bilateral exchange rates against the DM.

3.3 The Simulation Assumptions

In the following exercise I assume that the EMU will start with a "large" group of countries. Politically speaking this would mean around 10 to 11 EU Member States (see the trial decision in the previous chapter). Due to the technical constraint of the OEF model a "large" EMU means in the following all 9 EU countries for which explicit country models are available. In addition I will divide these countries in two groups according to their exchange rate behaviour vis-à-vis the DM in the recent past. Those countries which have experienced a rather stable link of their bilateral exchange rates vis-à-vis the DM in recent years (even during the crises of the EMS in September 1992 and in August 1993) are labeled "hard-currency group" (Belgium, Germany, France, Netherlands, Austria). Those countries which have exhibited strong fluctuations around the DM in the past (in particular because of a sharp devaluation during the EMS crises) are called "soft-currency countries" (Spain, Italy, Sweden, United Kingdom).

The EMU in general and the Euro in particular are assumed to have four economic implications. The respective model inputs and their positive and negative economic impacts are explained in detail in Table 2

1. A reduction of transaction costs
2. More competition in the financial sector
3. Exchange rate stability
4. Dynamic or growth effects

Table 2

In the following simulations these effects are implemented as model inputs. No special assumption is made concerning the future monetary policy of the European Central Bank (ECB), neither that it will be restrictive at the beginning in order to gain credibility (which would imply an increase in the level

of interest rates) nor that it will be moderate in order to weaken the external position of the Euro against the US-Dollar. Similarly, no change in the behaviour of other agents (e.g., in the wage bargaining process) in the economy is assumed. Such assumptions and the use of an econometric model with estimated coefficients of past behaviour may provoke the famous Lucas critique. Admittedly, the EMU is a centenary project unique in economic history. Therefore, any past experience is of little help in analysing the possible outcome of this historical experiment. Nevertheless, it seems better to use a multi-country model framework to analyse consistently the implications of the EMU than just to work with thumb rules.

One has to take into consideration that a) the simulation results depend crucially on the assumptions (in particular concerning the exchange rate stability) and that b) the size of the quantified effects depends on the "critical mass" of countries participating in the EMU starting on 1 January 1999.

3.4 Simulation Results of a Large EMU

[Graph 2a](#), [Graph 2b](#), [Graph 2c](#), [Graph 2d](#), [Graph 2e](#)

Table 3

1. Given the assumptions made in the previous section the simulation experiments imply a basic *trade-off* when the EMU starts with a "large" group of countries. It is obvious that a large EMU will result in overall positive GDP effects but at the same time the internal and external stability of the EU is at risk. The reason is that a large EMU would be an artificial union of "hard-currency countries" (which already had enough practice with fixed exchange rates (vis-à-vis the DM)) and of "soft-currency countries" which have no experience with fixed exchange rates. In any case, the winners - measured by the increase in real GDP are the countries which belong to the "hard-currency group". The [Graph 2a to 2e](#) show the time profile for the major macro variables for all countries separately. [Table 3](#) presents the simulation results for the first and the fifth year for the countries grouped into "hard-currency" and "soft-currency" countries as well as for the EU average and for Austria.
2. The *winners and losers* are not evenly distributed in the EMU. In a large EMU the gains of the "hard-currency group" would amount to 1.9% of real GDP after five years (cumulative from 1999 to 2003), whereas those of the "soft-currency group" would only be 1.4%. As a result on EU average real GDP could increase by 1.7% in the medium run (see [Graph 2a](#), [Table 3](#)).
3. The *employment effects* are consistent with the real income effects. However, as many experts foresee the EMU as such is not able to solve the huge structural unemployment problems presently dominating in Europe. Again, the "hard-currency group" would slightly gain (+0.8% more independent employment after five years), whereas the "soft-currency group" would lose (-0.9%). On EU average the employment impulse of the EMU would be very moderate (not more than 0.1 percentage points in the medium run; see [Graph 2b](#), [Table 3](#)).
4. As mentioned earlier it is assumed that there is no change in the wage (bargaining) policy when entering the EMU. However, one of the paramount implications of the EMU is the limitation of the national sovereignty in many *macro policy* areas. Monetary policy is centralized in the EU via the ECB; the exchange rates are fixed (introduction of the Euro); the fiscal policy has to be in line with the rule of the "stability and growth pact" for Stage III of the EMU (i.e., the public deficit should normally not surpass the reference value of 3% of GDP). After having lost the room for manoeuvre in nearly all areas of national macro policy, the only major policy instrument that remains in national hands is the incomes and wage policy (Breuss (1994)). Again, in this area the learning costs are probably higher in the "soft-currency

countries" than in the "hard-currency countries". Model simulations show that - assuming no change in the wage policy - the transition from a "small" (only the "hard-currency group") to a "large" EMU will lead to an effective real depreciation in the "hard-currency countries" and an effective real appreciation in the "soft-currency countries" (measured by relative unit labour costs in common currencies; see Breuss (1997, chapter 3)). The resulting disadvantages in competitiveness can only be eliminated if the "soft-currency countries" will succeed in reorienting their wage policy towards a more productivity oriented policy. The Austrian example of its "hard-currency" policy stance since 1981 can serve as a good example (see Breuss (1992)). After linking the Schilling to the DM Austria had to adjust not only the nominal variables (interest rates, inflation, wages) but also its labour productivity to German standards in order to remain competitive in international markets.

5. In addition to the possible income effects which occur in all countries participating in the EMU due to the "reduction the transactions costs", the investment-stimulating effect of "more competition in the financial sector" and the so-called "dynamic effects" only the "hard-currency countries" profit from the "exchange rate stability" implied by establishing the EMU. The reason is that the countries of the "soft-currency group" competing on the Single Market no longer could take advantages of competitive devaluation. According to model simulations carried out by the EU Commission (EC (1995; 1996, p. 17)) the exchange rate turbulences from December 1994 to April 1995 disturbed intra-EU trade considerably. Accordingly, real GDP of the EU has been reduced by 1/2% (in Germany and Austria, respectively, real GDP declined by -1 1/2% over two years - 1995/96; Italy gained by 2/3% in the same period). The total results of the large EMU (see [Table 3](#)) depend crucially on the assumptions concerning the exchange rate stability. If one would assume that exchange rate turbulences comparable to the period 1992 to 1996 will not happen in the future (either because the exchange rates of all EU countries are already in line with the fundamentals or because the progress in convergence also implies a convergence in the exchange rate development in the future) then the income effects would be more positive for the "soft-currency group" than for the "hard-currency group". This extreme case can be verified by subtracting the column 3 in [Table 3](#) from the total results in column 5.
6. On the Council meeting in Dublin in December 1996 a regulation was proposed concerning the relationship between the "ins" and the "pre-ins". In a newly defined exchange rate mechanism (*ERM II*) those countries which do not participate in the EMU from the beginning should manage to hold their exchange rates vis-à-vis the Euro in close margins. If the EU succeeds with this procedure, the economic effects from the "exchange rate stability" should be of the same amount, whether the EMU is large or small at the beginning. All other positive growth and employment effects depend of course on the size of the EMU. A critical mass is necessary in order to get measurable positive effects from the "reduction of transactions costs", the "competition effects in the financial sector" and in particular from the "dynamic effects" which depend on the utilization of economies of scale.
7. The *internal stability* is in danger if all EU countries or at least a large number of countries would start with the EMU. In particular assembling "hard-currency" and "soft-currency" countries lead to a currency area which is not optimal. Fixing the exchange rates (introduction of the Euro) induces strong pressure towards *convergence of the price levels*. As a consequence the price levels increase in the "hard-currency countries" (higher inflation by 6.8% after five years) and decrease in the "soft-currency countries" (lower inflation by -11.8%). On EU average this process would lead to a reduction in the price level (CPI) by 0.7% in the medium run (see [Graph 2cc](#), [Table 3](#)).
8. As the introduction of the Euro enhanced with a centralized monetary policy creates an integrated financial market one can expect a further *convergence in the levels of interest rates*. Although a considerable convergence took already place since 1996, there is still an interest rate gap between the "hard-currency" and the "soft-currency" countries. The model simulations show that after establishing the EMU this process of convergence continues, implying an increase of the long-term interest rates in the "hard-currency group" by 0.3% after five years

and a decline in the "soft-currency group" by 2.8%. On EU average the level of interest rates would decline by one percentage point in the medium run (see [Graph 2d](#), [Table 3](#)).

9. The uneven real performance of a large EMU implies also the danger of a divergence of both country groups concerning their *fiscal criteria*. Taking into consideration the "stability and growth pact" for Stage III this would imply a further entry barrier for the "pre-ins". Because these countries would not be able to meet the reference value of the public deficit (3% of GDP) by their own. This would imply either that they would permanently be penalized which would even more deteriorate their fiscal performance or secondly, the other EMU countries would have to "bail out" via fiscal transfers in order to stabilize the EMU (see also Siebert (1996), Scharmer (1997)). Although the EC Treaty in Art. 104b explicitly excludes the possibility of a bail-out ("no bail-out rule") it would become a major topic of solidarity (Art. A of TEU and Art. 2 of EC Treaty) as well as of a question of financial solidarity (Art. 103a EC Treaty; see Heinemann (1995)).
10. The *external stability of the Euro* is in danger the more of those countries take part in the EMU which were responsible for the exchange rate turbulences in the recent past. The model simulations reflect these suggestions by a depreciation of the Euro against the US-Dollar by 6.8% after five years. If, however, in order to gain credibility for the Euro in a large EMU (i.e., in order to avoid a devaluation of the Euro) the ECB would switch to a very restrictive monetary policy stance right at the beginning of the EMU in 1999 interest rates would increase and hence, many of the simulated positive income effects would not materialize (see [Table 3](#)).

4. Conclusions

The EMU is the final goal of European economic integration. For political reasons the larger the EMU the less is the danger of a Europe "à deux vitesses". However, from an economic viewpoint the EU-15 can hardly be claimed to be an "optimum currency area". Compared to the United States labour mobility and flexibility are low in Europe. This however, is one of the most important ingredients for the working of a monetary union. Either it consists of a homogenous group of countries or the non-homogeneity is compensated by labour mobility between the Member States. These theoretical arguments are underlined by the macroeconomic model simulations of a large EMU carried out in this paper.

Recent economic forecasts increase the probability that firstly, the EMU can start as planned on January 1, 1999 and secondly, that it will start with a large group of countries. This means that "hard-currency" and "soft-currency" countries will be linked artificially. What then are the consequences of a large EMU right from the beginning? This is analysed in this paper by means of macroeconomic model simulations. The implications of a large "non-optimal" EMU are as expected. On the one hand, there are positive income effects for all countries - although unevenly distributed over the participants - on the other hand, the internal (inflation) and external (value of the Euro vis-à-vis the Dollar) stability are at risk.

As a conclusion of the unequal economic performance in a large EMU I would suggest that the EMU should start with a core EMU consisting just of those countries which proved to be shock-resistant in their exchange-rate behaviour in the last few years, in particular during the EMS crises in 1992 and 1993. The core consists of countries which did keep their currencies relatively fix vis-à-vis the DM. In this "hard-currency" group the financial convergence has already occurred (similar levels of interest rates and inflation). To the core EMU would belong Belgium, (Denmark, if it did not take advantage of its "opting-out" rule), Germany, France, Luxembourg, Netherlands, Austria. There would be no danger of internal and external stability. The Euro would start as a credible international currency.

After some years of positive performance of this core EMU the other EU Member States could join if they are ready concerning the convergence criteria and if they were able to link their currency in a narrow margin to the Euro. As early as the year 2002, when the Euro is becoming the legal tender the second group should join the core EMU group.

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Table I

Convergence Criteria for 1997

| | Consumer Price Inflation (1) | General Government Surplus (+) or Deficit (-) | General Government Gross Debt | Long-Term Interest Rate | Exchange Rates Within the EMS | | All Criteria Fulfilled | |
|-----------------|------------------------------|---|-------------------------------|-------------------------|-------------------------------|-------------------|-----------------------------|---------------------------------|
| | % change | % of GDP | % of GDP | % | Normal Fluctuation Margins | ERM Participation | „Strict” Interpretation (2) | Art. 104c(2) Interpretation (2) |
| | | | | | 1995/96 | 1996 | | |
| Belgium | 1.9 | -2.7 | 126.7 | 5.8 | yes | yes | no | yes |
| Denmark | 2.4 | +0.3 | 67.2 | 6.2 | yes | yes | no (4) | yes (5) |
| Germany | 1.8 | -3.0 | 61.8 | 5.6 | yes | yes | no | yes |
| Greece | 6.0 | -4.9 | 108.3 | 10.8 | no | no | no | no |
| Spain | 2.3 | -3.0 | 68.1 | 6.6 | yes | yes | no | yes |
| France | 1.6 | -3.0 | 57.9 | 5.8 | yes | yes | yes | yes |
| Ireland | 2.0 | -1.0 | 68.3 | 6.4 | yes | yes | no (4) | yes |
| Italy | 2.3 | -3.2 | 122.4 | 7.0 | no | yes (3) | no | no/yes ? |
| Luxembourg | 1.7 | +1.1 | 6.5 | 6.0 | yes | yes | yes | yes |
| Netherlands | 2.4 | -2.3 | 76.2 | 5.6 | yes | yes | no(4) | yes |
| Austria | 2.0 | -3.0 | 68.8 | 5.6 | yes | yes | no | yes |
| Portugal | 2.5 | -3.0 | 64.1 | 6.5 | yes | yes | no | yes |
| Finland | 0.9 | -1.9 | 59.2 | 5.9 | no | yes (3) | yes (4) | yes |
| Sweden | 0.7 | -2.6 | 76.5 | 6.7 | no | no | no | no |
| United Kindom | 2.2 | -2.9 | 54.7 | 7.5 | no | no | no | no (5) |
| EU-15 average | 2.1 | -2.9 | 72.9 | 6.2 | | | countries | countries |
| Reference value | 2.6 (*) | -3.0 | 60.0 | 8.2 (+) | | | 3 | 10-11 (12) |

(1) Price inflation is evaluated according to the „harmonized” conumer price indices (CPI).

(2) Refers to the fiscal criteria (general government balance and general government gross debt) according to the EC Treaty, Art. 104c(2).

(3) Since October 12, 1996 Finland takes part in the exchange-rate mechanism of the EMS; Italy joined again on November 2, 1996.

(4) The Council (ECOFIN) decided on July 1996 that Denmark and Ireland met the fiscal criteria based on data of 1995 (no excessive deficit); Luxembourg always complied with this condition; on May 12, 1997 the Council decided that also the Netherlands and Finland (based on data of 1996) have no longer an excessive deficit.

(5) Denmark and the United Kingdom have an „opting out" rule (Protocol 11 and 12 of the EC Treaty).

(*) Defined as the average inflation rate of those three countries with the lowest inflation rates plus 1.5%.

(+) Defined as the average nominal long-term interest rate of those three countries with the lowest inflation rates plus 2 percentage points.

Convergence criteria according to the EC Treaty, Art. 109j and the Protocols 5 and 6.

EMS = European Monetary System; ERM = Exchange-rate mechanism of the EMS.

Source: European Commission, Spring 1997 forecasts.

Table II

Model Inputs and Economic Impact of a Large EMU

| Economic Effects (model inputs) | Positive Impact | Negative Impact |
|--|--|---|
| Reduction of transaction costs (0.2% to 0.9% of GDP; adjustment of disposable income - less in hard-currency countries, more in soft-currency countries) | <ul style="list-style-type: none"> Abolition of costs of foreign currency exchange (positive for tourists, export and import agents) | <ul style="list-style-type: none"> Banks lose part of their currency exchange business (possibly a reduction in employment in this sector) |
| More competition in the financial sector (-1% short-term interest rates; evenly imputed for all countries) | <ul style="list-style-type: none"> Stimulating cross-border competition in the financial sector (banks and insurances) improves the conditions for financing business investment | <ul style="list-style-type: none"> Profit squeeze in the banking sector (possibly a reduction in employment in this sector) |
| Exchange rate stability (imposition of the exchange-rate fluctuations of the period 1992-96 to the period 1999-2003) | <ul style="list-style-type: none"> Hard-currency countries gain because these countries are no longer confronted with the devaluation threat of the soft-currency countries Interest rates and the price level will converge (i.e., an increase in the | <ul style="list-style-type: none"> Soft-currency countries will lose because these countries can no longer use devaluations in order to improve their competitiveness Interest rates and the price level will converge (i.e., a decrease in the soft-currency |

| | | |
|---|---|--|
| | hard-currency countries) | countries). <ul style="list-style-type: none"> The internal (inflation) and the external stability (the external value of the Euro) are at risk in a large EMU |
| Dynamic or growth effects (increase of total factor productivity - TFP - by 0.3% to 0.7% according to the Baldwin multiplier) | <ul style="list-style-type: none"> A stronger TFP increase and therefore larger growth effects may be expected in the hitherto less efficient soft-currency countries. | <ul style="list-style-type: none"> Less additional TFP increases and therefore weaker growth effects can be expected in the already highly efficient hard-currency countries. The increase of TFP leads partly also to job losses. |

Table III

Macroeconomic Effects of a Large EMU

| | Partial effects of EMU | | | | | | | | Total Effects of EMU | |
|----------------------------|--|----------|--|----------|-----------------------------|----------|-------------------------------|----------|----------------------|----------|
| | Reduction of Transaction Costs (1) | | More Competition in the Financial Sector (2) | | Exchange-rate Stability (3) | | Dynamic or Growth Effects (4) | | (5)=(1+2+3+4+5) | |
| | 1st year | 5th year | 1st year | 5th year | 1st year | 5th year | 1st year | 5th year | 1st year | 5th year |
| | (Deviations from base line solution(1) in %) | | | | | | | | | |
| GDP effects: | | | | | | | | | | |
| HC | 0.25 | 0.12 | 0.31 | 0.18 | 0.28 | 0.16 | 0.13 | 1.46 | 0.97 | 1.92 |
| AT | 0.45 | 0.00 | 0.36 | 0.25 | 0.06 | 0.30 | 0.21 | 1.64 | 1.08 | 2.19 |
| SC | 0.72 | 0.24 | 0.38 | 0.60 | -0.51 | -1.97 | 0.18 | 2.54 | 0.77 | 1.41 |
| EU | 0.44 | 0.17 | 0.34 | 0.35 | -0.04 | -0.70 | 0.15 | 1.89 | 0.89 | 1.71 |
| Employment effects: | | | | | | | | | | |
| HC | 0.09 | 0.11 | 0.12 | 0.17 | 0.08 | 0.21 | 0.04 | 0.34 | 0.33 | 0.83 |
| AT | 0.13 | 0.09 | 0.10 | 0.21 | 0.02 | 0.22 | 0.04 | 0.11 | 0.29 | 0.63 |
| SC | 0.23 | 0.44 | 0.11 | 0.57 | -0.13 | -2.15 | 0.03 | 0.24 | 0.24 | -0.90 |
| EU | 0.15 | 0.24 | 0.12 | 0.33 | 0.00 | -0.74 | 0.03 | 0.30 | 0.30 | 0.13 |
| Price effects: | | | | | | | | | | |
| HC | 0.08 | 1.85 | 0.13 | 2.44 | 0.05 | 5.0 | -0.13 | -2.46 | 0.13 | 6.83 |
| AT | 0.19 | 1.90 | 0.14 | 2.80 | 0.00 | 3.10 | -0.07 | -1.35 | 0.26 | 6.45 |

| | | | | | | | | | | |
|-------------------------------|------|------|-------|-------|-------|--------|-------|-------|-------|--------|
| SC | 0.21 | 3.10 | -0.13 | 2.82 | -0.22 | -15.17 | -0.21 | -2.56 | -0.35 | -11.81 |
| EU | 0.13 | 2.35 | 0.02 | 2.60 | -0.06 | -3.12 | -0.16 | -2.50 | -0.07 | -0.67 |
| Interest rate effects: | | | | | | | | | | |
| HC | 0.20 | 0.78 | -0.84 | -0.36 | 0.11 | 2.19 | -0.33 | -2.27 | -0.86 | 0.34 |
| AT | 0.23 | 0.66 | -0.93 | -0.45 | 0.08 | 2.25 | -0.38 | -2.55 | -1.00 | -0.09 |
| SC | 0.22 | 0.65 | -0.89 | -0.39 | -0.02 | -0.51 | -0.41 | -2.50 | -1.10 | -2.75 |
| EU | 0.21 | 0.72 | -0.86 | -0.37 | 0.05 | 0.99 | -0.36 | -2.37 | -0.96 | -1.03 |
| Budgetary effects: | | | | | | | | | | |
| HC | 0.32 | 0.34 | 0.26 | 0.46 | 0.07 | 0.29 | 0.11 | 0.73 | 0.76 | 1.82 |
| AT | 0.55 | 0.23 | 0.43 | 0.81 | 0.02 | -0.01 | 0.18 | 1.18 | 1.18 | 2.21 |
| SC | 0.26 | 0.36 | 0.22 | 0.63 | -0.14 | -1.81 | 0.10 | 0.92 | 0.44 | 0.10 |
| EU | 0.29 | 0.35 | 0.24 | 0.54 | -0.02 | -0.64 | 0.10 | 0.82 | 0.61 | 1.07 |
| Exchange rate | | | | | | | | | | |
| (Euro/US-\$(2)) | 0.01 | 1.83 | 0.27 | 2.61 | -0.01 | 4.86 | -0.01 | -2.52 | 0.26 | 6.78 |

(1) Base line solution is the EMU scenario with fixed exchange rates vis-à-vis the DM, starting in January 1999. The scenario "Exchange-rate stability" compares the EMU scenario with a situation of exchange-rate fluctuations during the period 1992 to 1996. "Large EMU" means in the model, that 9 EU Member States participate in the EMU.

(2) An increase (decrease) means devaluation (revaluation) of the Euro against the US-Dollar.

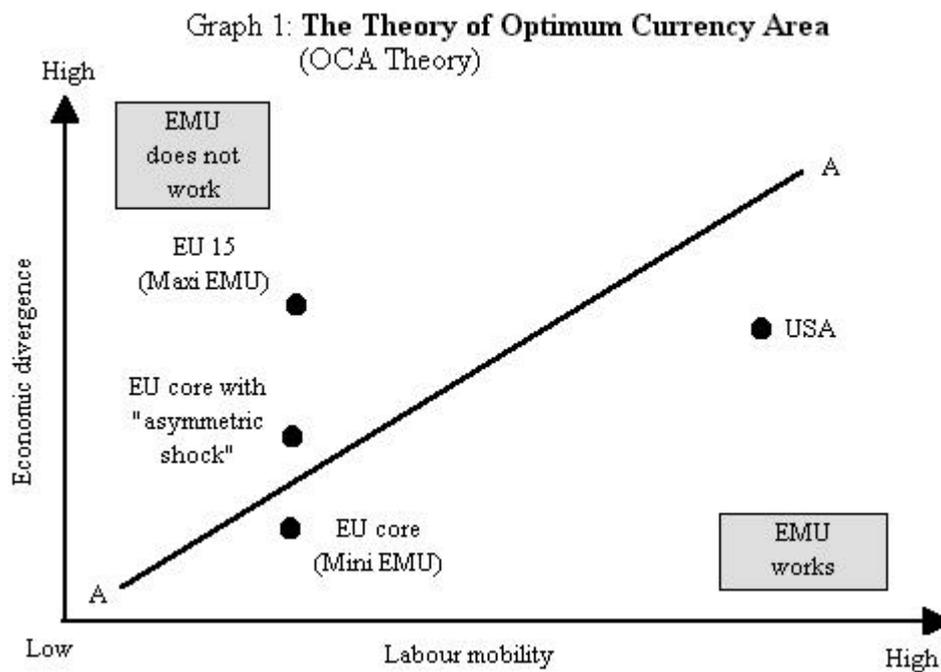
HC = Hard-currency group (Belgium, Germany, France, Netherlands, Austria).

SC = Soft-currency group (Spain, Italy, Sweden, United Kingdom).

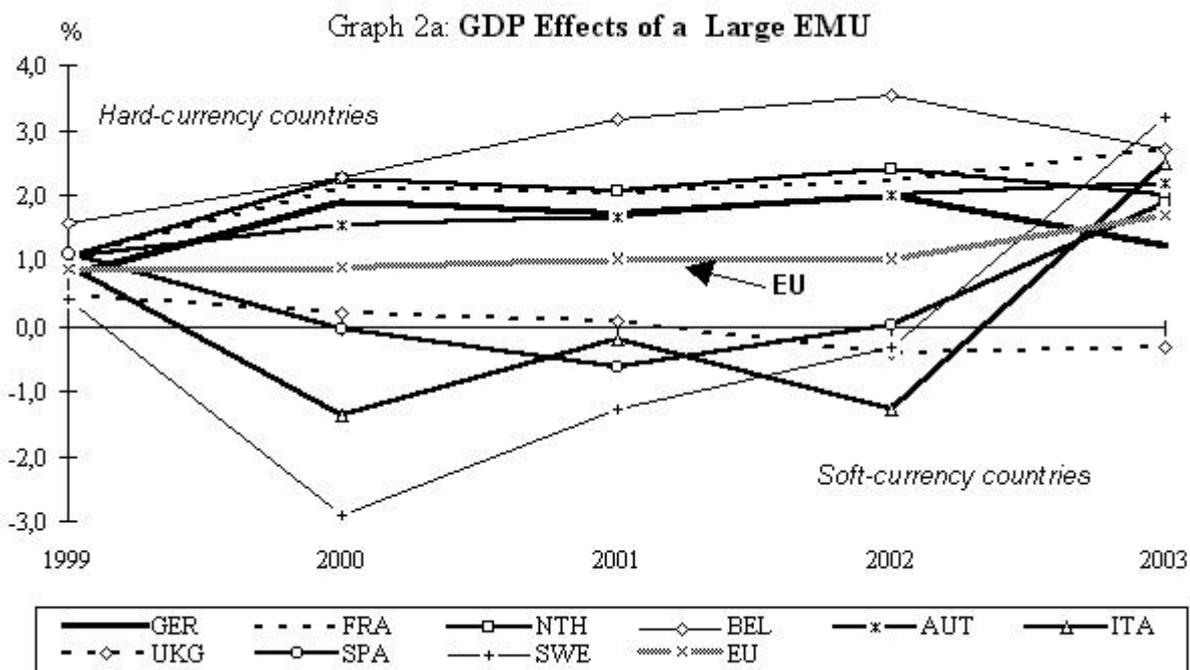
AT = Austria; EU = HC + SC.

Source: Own calculations with the OEF World model.

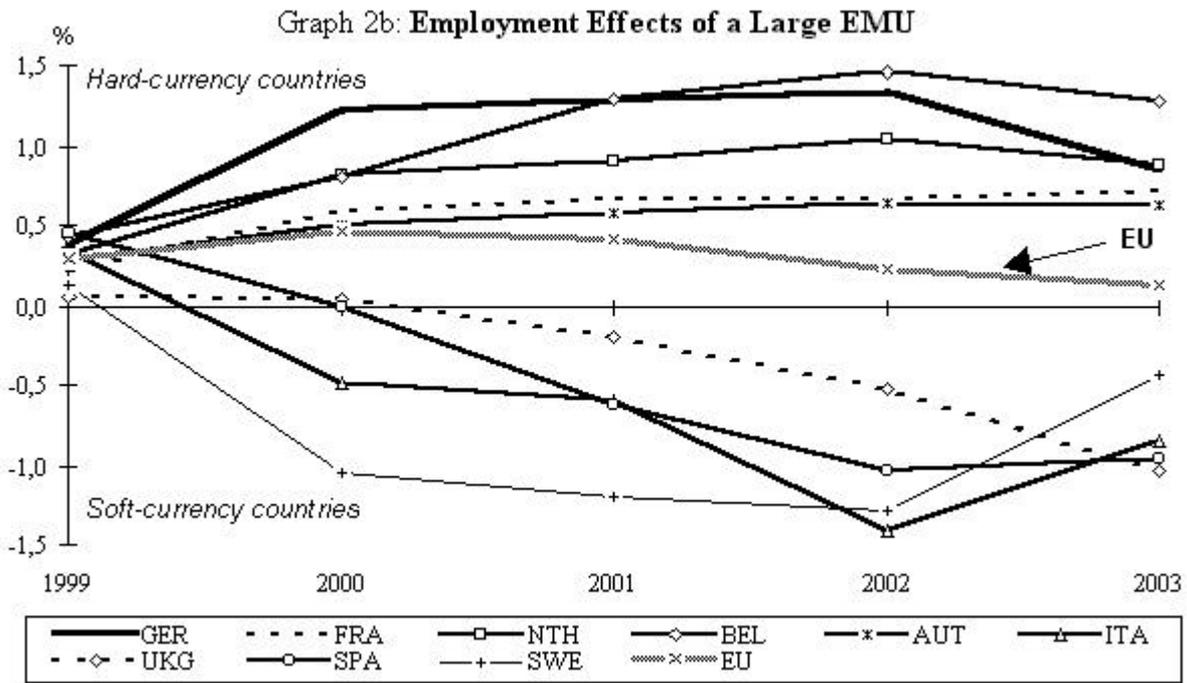
Graph 1



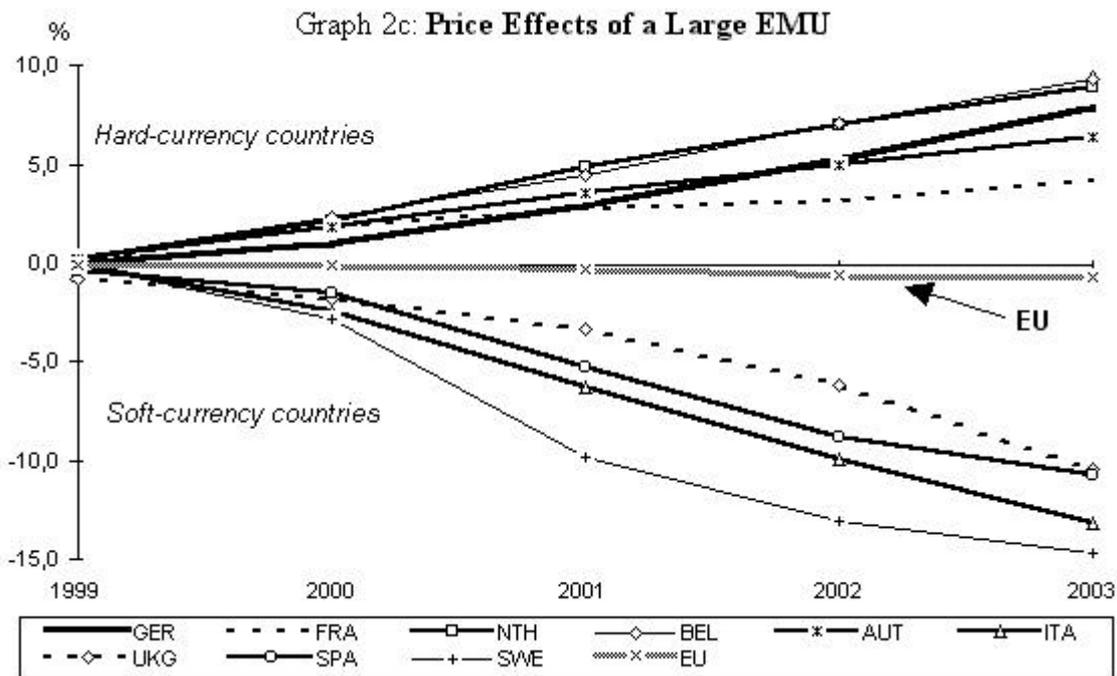
Graph 2a



Graph 2b

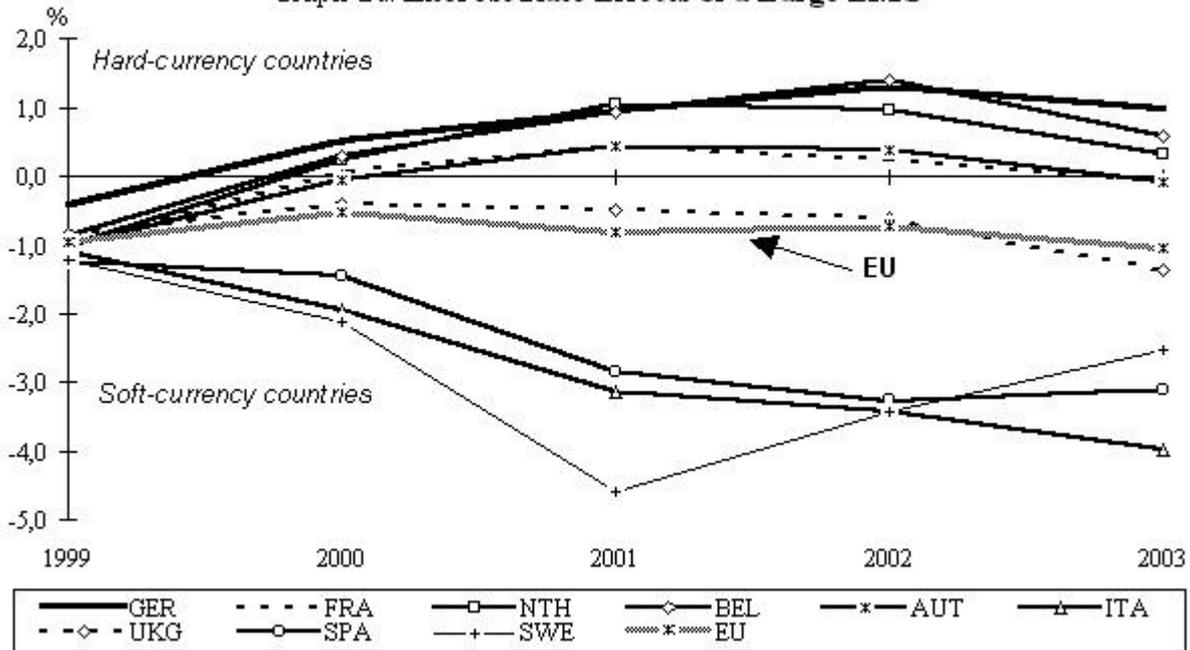


Graph 2c



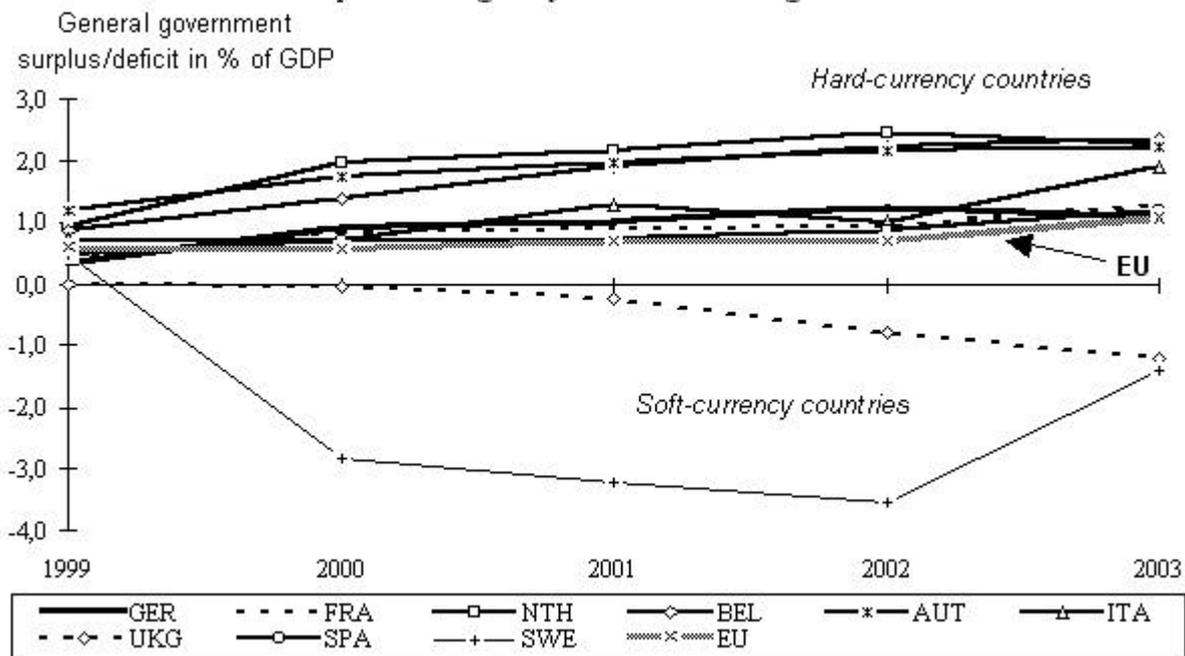
Graph 2d

Graph 2d: Interest Rate Effects of a Large EMU



Graph 2e

Graph 2e: Budgetary Effects of a Large EMU



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