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THE EMU AFTER THREE YEARS: LESSONS AND CHALLENGES

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The EMU after three years: Lessons and challenges

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Introduction

The first three years of European Monetary Union provide a good basis for a comprehensive analysis of this unprecedented and controversial monetary arrangement. The paper starts with a short discussion of the recent changeover to Euro notes and coins and the general difficulties with the European Central Bank was confronted during the last three years. It then analyses the performance of the common monetary policy in terms of price stability and real growth and in terms of the important task of establishing credibility for the new institution. It discusses the role of the ECB's "two pillar strategy" and presents an alternative framework for the analysis of the ECB's interest rate policy. As the "weak Euro" has received much public attention, the paper tries to shed some light on the most important explanations that were put forward especially in 1999 and 2000 and offers an additional argument based on the theory of "behavioural finance". As the aggregate monetary policy does not necessarily fit to all individual member countries, the paper analyses whether national fiscal policies have been able and willing to counteract an inadequate monetary policy stance. It also tries to identify to what extend national inflation rates were influenced by the Balassa-Samuelson effect. In the last part the paper deals with some aspects of the eastern enlargement, above all the problems that could by associated with a lack of "real convergence".

The introduction of Euro notes and coins and the true challenges

The smooth and successful introduction of Euro coins and notes on 1 January 2002 was the final step on the long and difficult process of European monetary integration. Although this changeover has received much attention by the media and the public at large, its economic significance has been rather limited. It has often been overlooked that already since 1 January 1999 the national currency units were nothing more but non-decimal sub-units of the Euro. Thus, from a macroeconomic point of view the introduction of Euro banknotes and coins was mainly a technical issue not very different from a scenario under which a country would decide to exchange over night its whole currency in circulation by completely new series of bank notes and coins.

In other words, the true challenge for the ECB took place already three years ago with

- the introduction of the Euro as the common currency unit of 11 European countries,
- the irrevocable fixing of intra EMU exchange rates, and
- the transfer of monetary policy responsibilities to the European Central Bank.

This transition has been unprecedented in economic history. For the new central bank the main challenge was the difficulty of implementing a monetary policy for an area for which no genuine aggregate data were available and for which no established economic relationships were known. Of course, there was a core of six countries with a long history a very close monetary co-operation under stable exchange rates (Austria, Belgium, France, Germany, Luxembourg, Netherlands). But it was a priori not certain how the regime change of a common monetary policy would affect expectations and thus existing behavioural relationships.

In addition to these problems, the ECB had to cope during the whole period from 1999 to 2001 with serious economic shocks. In the beginning it was confronted with the fallout of the 1998 financial crises and a weakening euro, in the course of 1999 the third oil price shock gathered momentum and when this problem was almost overcome, the world economy suffered from the abrupt end of the US economic boom in the first half 2002 and was then shocked by the of terror attacks of 11 September 2001.

Price stability has been maintained over the medium term

A natural starting point for an assessment of the ECB is its performance in terms of price stability. This important target has been clearly enshrined in Article 105 of the EC Treaty which states:

"The primary objective of the ESCB shall be to maintain price stability."

In addition to this legal mandate the ECB's Governing Council has given the following quantitative definition of its final target: "price stability shall be defined as a year-on-year increase in the Harmonised Index of Consumer Prices (HICP) for the euro area of below 2%".[1] The council also has made clear that price stability "is to be maintained over the medium term".

This quantitative definition of price stability reflects

- a broad consensus among economists that monetary policy should not try to counteract the inflationary effects of *supply shocks* in the short term,
- the problem that in a monetary union the common central bank can only target the inflation rate of the *whole area* without being able to react to country specific shocks,
- the fact the statistical measurement of inflation tends to overstate the "true" inflation rate because of several *measurement biases*[2] so that an increase of the price index of around 2 % is still compatible with a constant purchasing power of money. The ECB has not defined a lower threshold of its target range for the inflation rate, but it has made clear that its definition excludes a *decline* of the price index.

As Chart 1 shows, only in 1999 the inflation rate in the Euro area remained within this target range. Because of the strong increase in oil prices (in Euro terms about 330 % from the first quarter 1999 to the fourth quarter 2000, the headline inflation rate exceeded the upper margin of 2 % already in January 2000 and reached its peak with 3.4 % in May 2001); in early 2001 the inflation was additionally boosted by the effects the animal diseases on food prices. Since then it has rapidly declined and has reached the 2 % threshold in December 2001. So far this performance can be regarded as compatible with the textbook recipe for coping with a supply shock which has shaped the ECB's framework of maintaining price stability "over the medium term". A relatively similar picture emerges if one looks at the core inflation in the Euro area – measured by the HICP excluding energy and unprocessed food. This index shows that the underlying inflation has always remained relatively close to the 2 % threshold. However, with a rate of 2.4 % in November 2001 it indicates that there is still some, albeit weak inflationary pressure in the Euro area.

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[1] ECB (1999, p. 46)
[2] See Bofinger (2001, p. 159)

Chart 1: Inflation in the Euro area
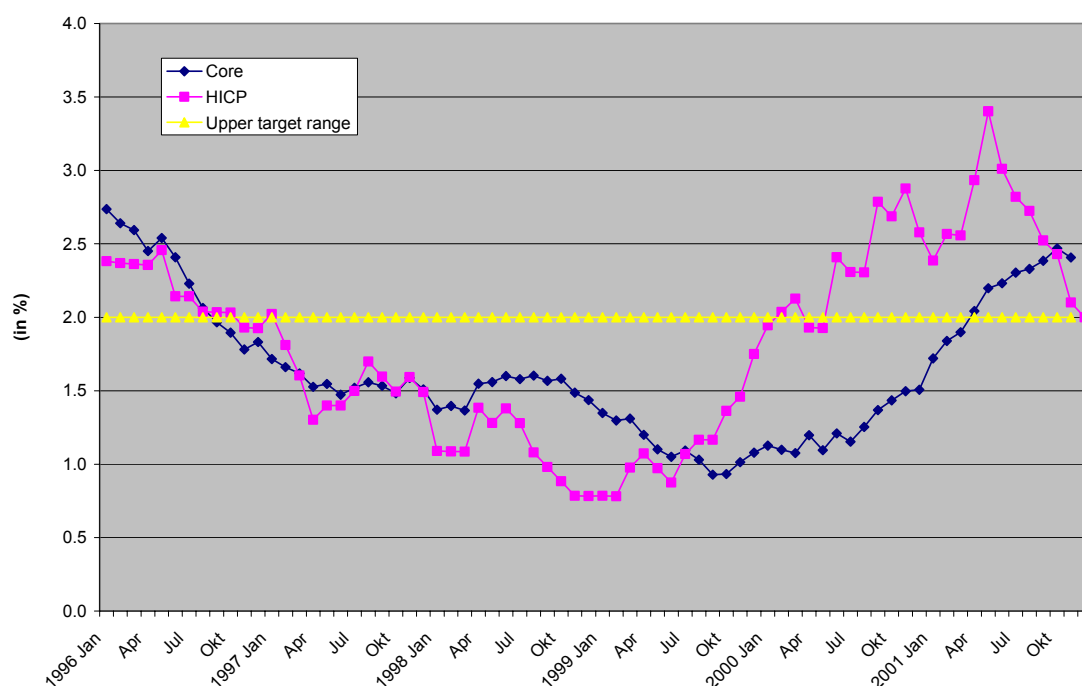
For an assessment of monetary policy the literature has developed the concept of loss functions which quantify the social loss of not reaching optimum values for macroeconomic final target, above all price stability and a low output gap.[3] A very simple variant of such a loss functions defines the social loss by the squared differences of the actual inflation rate and a target rate of inflation. If one assumes somewhat arbitrarily that the a target rate of around 2 % is compatible with the measurement biases, one can compare the social loss under different regimes. Loss function I in Table 1 shows the average annual values for the ECB and the Fed in the period 1999-2001 and for the Bundesbank and the Fed in the period 1990-98. In this admittedly very rough assessment the ECB has achieved a better performance than the Bundesbank in 1990-98 and the Fed in both periods. If one assumes a target rate of 2.5 % for the Fed, its performance in 1999-2001 is somewhat better than the ECB's performance.

**Table 1: Average annual social loss of major central banks**

	Loss function I : $L = (\pi - \pi^*)^2$ $\pi^* = 2.0$	Loss function II: $L = 0.5 \ (\pi - \pi^*)^2 + 0.5$ (output gap)^2
ECB 1999-2001	0.48	0.67
Fed 1999-2001	0.93 (0.35 with $\pi^* = 2.5$)	1.43 (1.15 with $\pi^* = 2.5$)
Fed 1990-1998	2.00 (1.43 with $\pi^* = 2.5$)	2.27 (1.58 with $\pi^* = 2.5$)
Bundesbank 1990-1998	2.30	3.48

Source: Own calculations based on OECD, Economic Outlook and IMF, World Economic Outlook; data for 2001 are the OECD's and the IMF's estimates.

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[3] See Svensson (1999)

The relatively good performance of the ECB in terms of its final target is above all reflected in indicators which are widely used for measuring inflation expectations. In this respect long-term nominal bond yields are especially informative since they can be regarded as the sum of a real yield plus expected inflation for a long-term horizon. Chart 2 shows the long-term bond yield for German bonds ("Umlaufsrendite") since 1955. It explains why for post-war Germany a bond yield of 6 % was widely regarded as a "natural" lower boundary. The fact that since the transition to EMU bond yields are significantly below this threshold (the average monthly yield for German bonds since January 1999 is 4.8 %) is a very strong indication that from the very beginning of EMU inflation expectations have been very low in the Euro area even in comparison with the era of Bundesbank.

Chart 2: Nominal yield of bonds issued in Germany
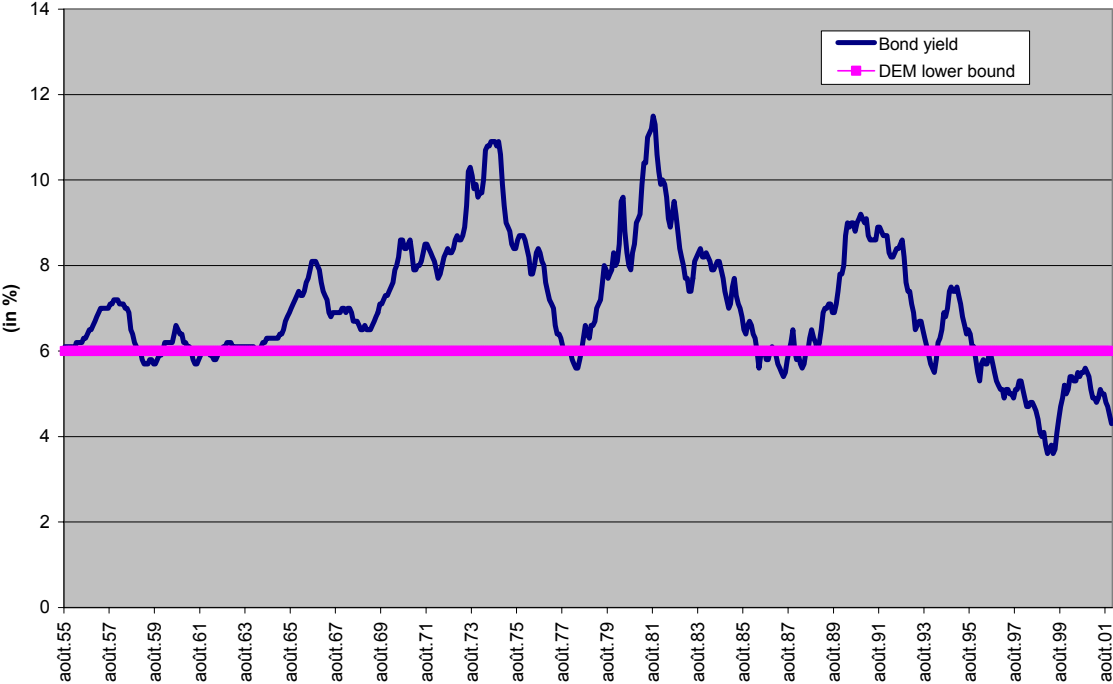
A similar picture is obtained if one compares the yield of nominal Euro bonds with the yield of indexed Euro bonds. This allows to calculate a "break-even inflation rate" which reflects inflation expectations of market participants. As Chart 3 shows the break-even inflation rate has so far never exceeded the 2 % threshold, even in periods when the headline inflation was much higher. In other words, if one measures the credibility of a central bank in terms of inflation expectations in relation to its target for inflation, from its very beginning the ECB can be regarded as a credible central bank.

Thus, one can say that the ECB has been able to pursue a stability-oriented monetary policy even under the difficult environment of a major supply shock. While it has allowed a short-term over-shooting of the headline inflation rate, it has been able to prevent second round effects that could have led into a wage-price spiral. Of course, this average inflation performance was accompanied with much stronger inflation rates in some smaller EMU countries. This important problem will be discussed later on.

Chart3 : Inflation expectations in the Euro area
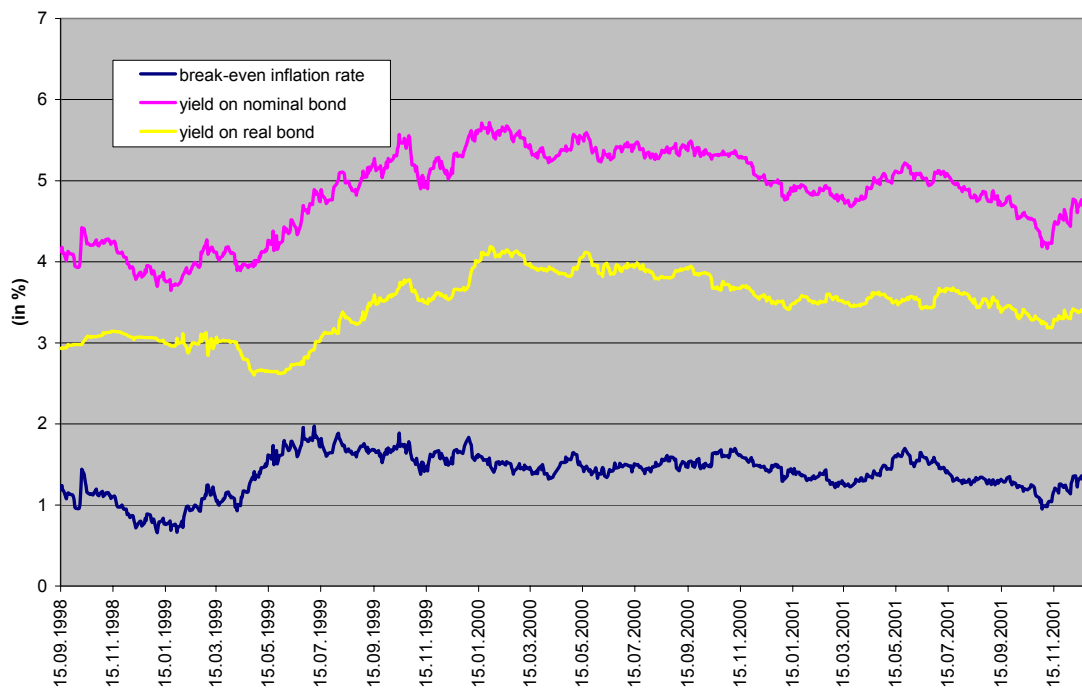
## Unemployment has come down but the pick-up in growth was short-lived

While the EC Treaty has given priority to the target of price stability, it nevertheless also requires in Article 105 that "without prejudice to the objective of price stability" the ECB "shall support the general economic policies in the Community". The contribution of monetary policy to the overall macroeconomic performance can be measured above all with the level of real interest rates. They have a strong impact on real sector activity either through their

- direct effects on new investment decisions, or their
- indirect effects via the *balance sheet channel*[4] on the profitability of firms and thus on their ability to raise funds in an environment with asymmetric information.

Chart 4 shows that real interest rates (nominal long-term and short-term rates minus private consumption deflator) have come down considerably already on the path towards EMU and but also during the first three years of the Euro. The fact that real rates are low in historical perspective does not depend on the choice of a specific deflator. In Chart 4 we have chosen the private consumption deflator because of data availability. For 2001 this index shows a price increase of 2.5 % which is only marginally higher than the core inflation rate of 2.2 % The outcome of historically low real interest rates reflects above all the advantages of a stable and credible monetary framework under which *risk premia* for unexpected inflation are very low. Of course, real interest rates are also determined by global financial conditions and by expected returns on real assets. But the decline compared to the first half of the 1990s with a rather dismal economic performance must mainly be related to a lower risk premium.

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[4] See Bofinger (2001, p. 90)

Chart 4: Long-term and short-term real rates
Euro area
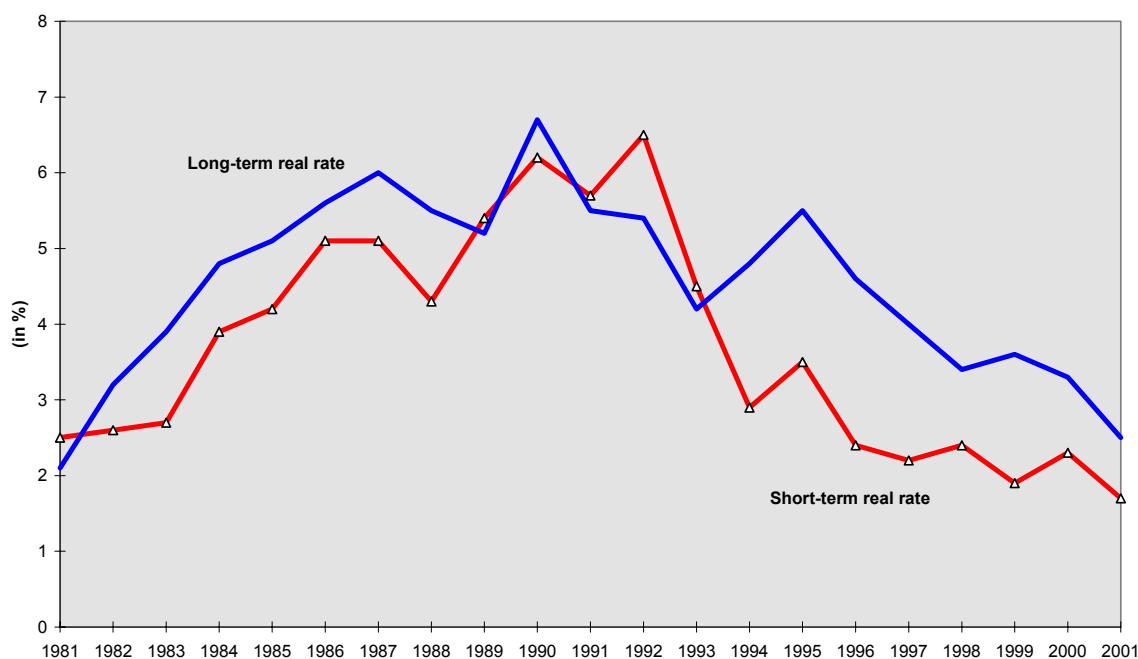
The stimulating effects of low real interest rates were enhanced by the strong depreciation of the Euro from January 1999 to November 2000. This is reflected by a *monetary condition index* for the Euro area. This index measures the combined effects of the real interest rate and the real exchange rate. In Chart 5 we have calculated two different indices which are constructed as follows. They calculate the deviation of the actual real interest rate from a neutral real interest rate and the deviation of the actual real effective exchange rate from a neutral real exchange rate. Then these two gaps are added up using a certain weighting scheme which reflects the relative impact of both variables on aggregate demand. For both indices we have used the effective real exchange rate on the basis of the consumer price index and the average real exchange rate in the period from January 1990 to November 2001 as the neutral rate. We use a neutral real interest rate of 2.8 % which is the average real interest rate of Germany in the period from 1960 to 1998. For the index MCI 1 we gave the interest rate gap a weighting factor of 4 and the exchange rate gap a factor of 1. For MCI 2 we used a weighting factor for the interest rate gap of 6. As one can see, both MCIs show a relatively similar development which indicates that – with the exception of a certain tightening in Spring 2001 – monetary conditions in the Euro area have been on average supportive to economic growth in the whole period from 1999 to 2001.

Until 1999 the stimulating effects of monetary policy were to some extend compensated by a relatively restrictive fiscal policy stance. Chart 6 shows that the actual and the structural deficits of the EMU member countries were strongly reduced during the process towards EMU. The restrictive effects of the consolidation on aggregate demand have been clearly compensated by the strong reduction in real interest rates during the same period. In the period from 1999 to 2001 (and even to 2002) the overall stance of fiscal policy has remained almost constant. Thus, the ECB had to bear whole burden of the overall macroeconomic management in the Euro area. For aggregate demand shocks this policy assignment has its merits since it avoids the difficult problems of designing and implementing adequate fiscal policy packages at the national level in a timely manner without threatening the medium-term consolidation efforts.

Chart 5: Monetary Conditions Indices Euro area
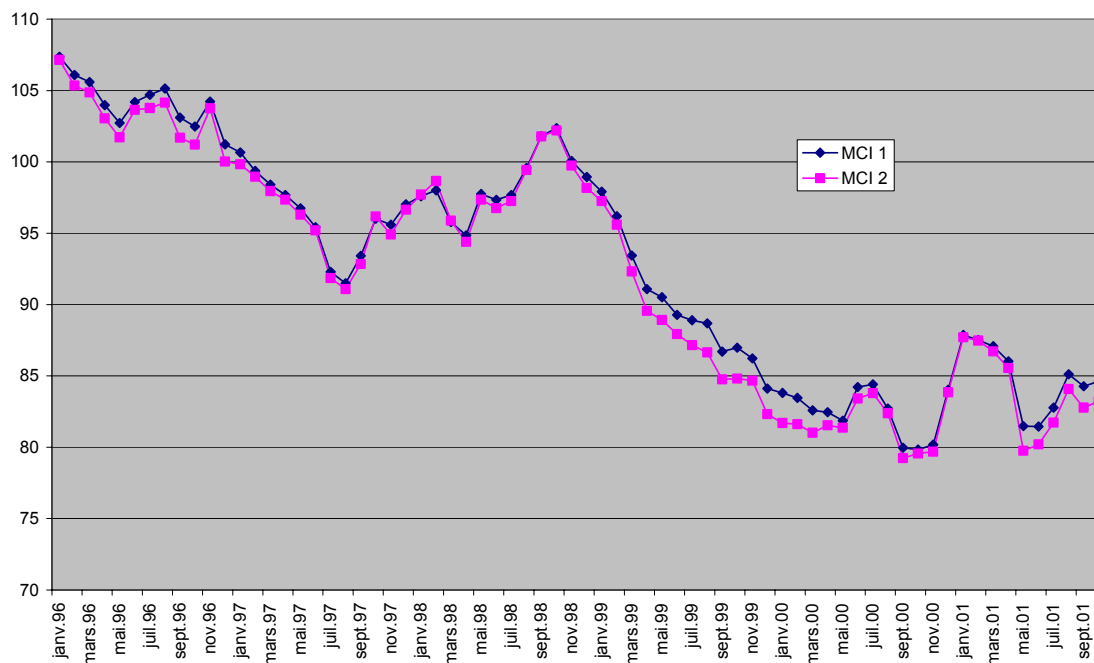
In the course of 1999 the overall effects of fiscal and monetary policy together with the weakening of the Euro and a favourable external environment lead to a surge in economic activity with quarter-on-quarter rates of GDP growth of more than 3.5 % in four subsequent quarters starting in the third quarter of 1999. This dynamic process also contributed to a marked improvement of the situation on the labour market. The unemployment rate of the Euro area which had reached its peak with 11,5 % in 1997 could be reduced by roughly a percentage point in 1999 and again in 2000. In 2001 it came down further to 8.5 %.

Chart 6: Fiscal policy stance in the Euro area
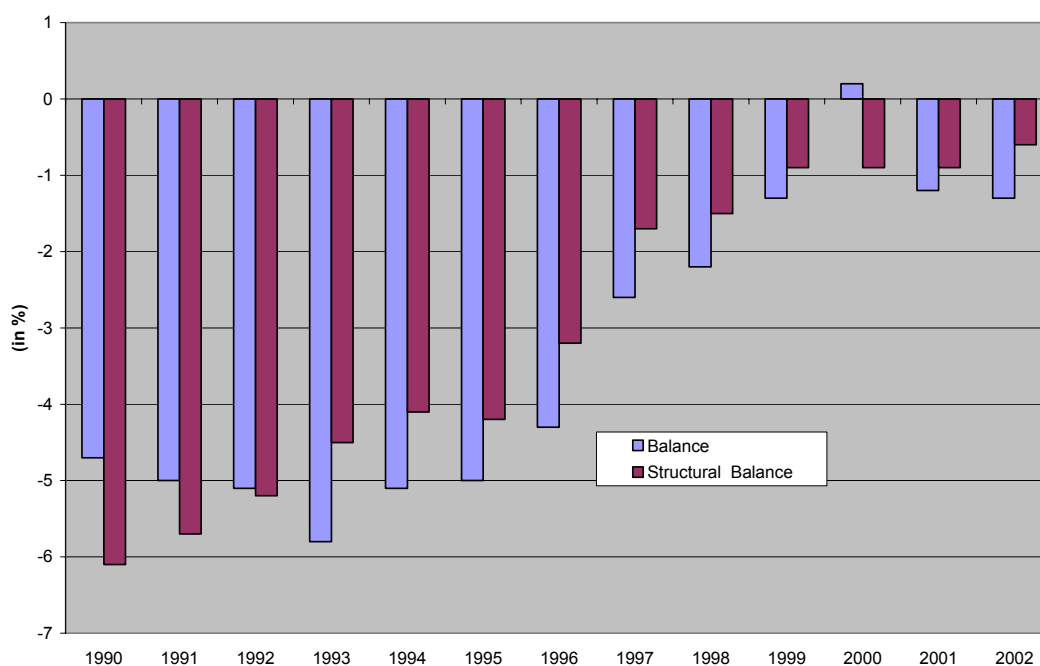
All in all in early 2000 the economy of the Euro area had reached a remarkable constellation of high growth, sound public finances and low inflation which had no parallel in whole period of the 1980s and 1990s. All this changed rapidly when the economy of the Euro area was confronted with full effects of the third oil price shock. The slowdown started in 2000 with a marked weakening of private consumption and private residential investment. In the course of 2001 the lack of demand affected non-residential investment and the deterioration of the global economy lead to a drastic decline in export growth.

In sum, the performance of the real economy in the Euro's first three years gives no indication that the ECB's policy has been detrimental to the other macroeconomic targets in the Euro area. The slowdown in activity can be clearly related to a strong supply shock. Again the ECB followed the mainstream view of academics when it did not try to compensate the negative effects of a higher oil bill on growth and employment.

It is interesting to assess the ECB's performance in terms of the real economy by again using a loss function. In this case the social loss can be calculated as the average of the squared output gap and the squared deviation of the inflation rate from a target value of 2 %. The result for this loss function II are also shown in Table 1. Again the ECB's performance is better than the performance of the Fed in the same period (also with a target inflation rate of 2.5 % for the Fed) and also superior to the outcomes that were realised under the Bundesbank's and the Fed's monetary policy in the period from 1990-98. Of course, such calculations can only give a very rough picture of a very complex interplay of micro- and macroeconomic forces. Nevertheless, there seems to be no indication that the ECB has so far been less successful than its most important predecessor or its most important competitor on the international level.

The ECB's monetary policy strategy

From the very beginning of its existence the ECB has attached a very high importance to presenting its monetary policy decisions within a comprehensive strategic framework. In this regard it has chosen an approach that is in line with the tradition of the Bundesbank and since the 1990s also with the practice of many other central banks which have mostly decided to adopt the strategy of inflation targeting. A notable exception to this practice is the Federal Reserve System which has so far made no attempts to develop a comprehensive monetary policy strategy.

For an understanding of the ECB's framework it seems useful to discuss the role of a monetary policy strategy in more general terms. The need for a strategy arises from the very complex environment under which a central bank has to take its interest rate decisions. This complexity is due to the still very limited knowledge of the so-called transmission process of monetary policy. As result a central bank cannot rely on a single robust macroeconomic model generating reliable values for its operating targets. Instead several models have to be used and in addition a high degree of judgement is required. In this difficult situation a strategy can be regarded as a "*rule of thumb*" or "*heuristic*"[5] which ideally reduces the complexity of the real world to a few – or even one – relevant indicators which under normal conditions lead to a sensible outcome. If such a rule can be identified, it has the dual advantage of facilitating

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[5] For an introduction see see Gigerenzer and Todd (1999)

- the *internal* decision-making process of a decision-making body which consists of several members (18 in the case of the ECB' s Governing Council), and
- the *dialogue with the public* that tries to understand the rationale of a central bank's interest rate decisions and which is not able or willing to deal with a very complex decision structure. In this respect a strategy can help to increase the transparency and thus the credibility of monetary policy.

The ECB has presented its framework in the form of a "stability-oriented monetary policy strategy" (ECB 1999a). In addition to the quantitative definition of price stability which we have already discussed this strategy includes " two pillars"

- The first pillar is provided by a "reference value" for the growth rate of the money stock M3 which underlines the "prominent role for money" in the ECB's strategy.
- The second pillar consists of a "broadly based assessment of the outlook for future price developments".

The first pillar: Confusion instead of transparency

With the first pillar the ECB has made clear that it regards itself in the tradition of the Deutsche Bundesbank which was the only central bank in the world announcing monetary targets for a longer period of time (from 1994 until the end of its autonomy in 1998) . Given the uncertainties with which the ECB was confronted at the beginning of its operations it decided to use a the weaker form of a reference value instead of announcing an outright monetary target.

In principle, such a reference value comes very close to the ideal of a "rule of thumb". It reduces the difficult task of identifying the correct interest rate to a comparison of the actual growth rate of M3 with the reference value. If monetary growth exceeds the reference value, interest rates have to be increased and vice versa. Of course, the whole approach makes only sense, if monetary growth relative to the reference is a reliable predictor of future inflation.

In practice this "heuristic" is very difficult to implement. This had already become clear from the experience of the Bundesbank which failed to meet its monetary targets every second year. In addition, econometric studies of the Bundesbank's reaction function come unanimously to the conclusion that monetary growth had very little impact on the bank's interest rate policy.[6]

In the case the ECB the experience with the first pillar is so far not very different from the performance of the Bundesbank. Chart 7 shows for the data that were provided by the ECB until November 2001 that the growth rate of M3 was always above the reference value. In December 2001 the ECB adjusted the money stock M3 for money market funds and short-term bonds held by foreigners. This reduced the growth rate by about 75 basis points so that the increase of money holdings was for some months below the reference value. But even on the adjusted basis in June 2001 M3 growth picked up and accelerated until November to a rate of more than 7 %.

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[6] See e.g. Clarida and Gertler (1996).

**Chart 7: The first pillar and ECB's interest rate policy**
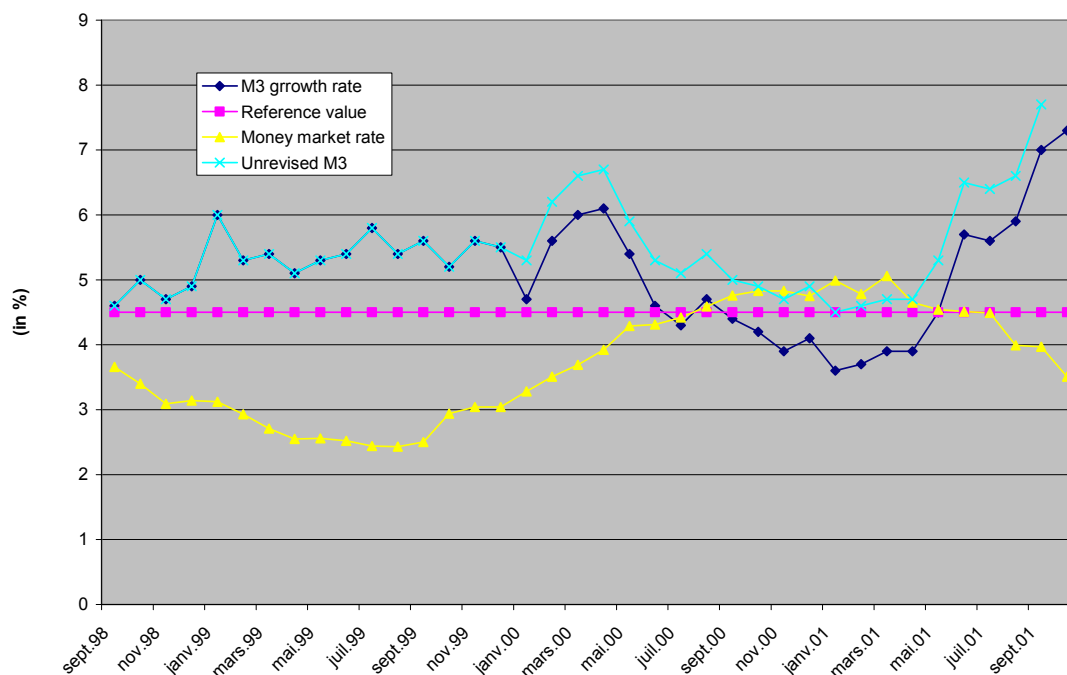
The interest rate policy of the ECB which is reflected by the overnight rate in Chart 7 is difficult to reconcile with the directions provided by the first the pillar. The first reduction of the ECB's interest rates on April 1999 took place in a situation where the money growth was above the reference value. The ECB kept interest rates at this low level until November 1999 although monetary growth was still too high relative to the reference value. The subsequent series of interest rate hikes that took place until October 2000 were compatible with the unrevised monetary statistics but in retrospect this is not the case for the decisions of September and October 2000. Finally the four interest rate reductions in 2001 occurred in a situation when monetary growth was stronger than the reference value and even accelerating.

In other words, the available evidence suggests that the first pillar cannot have played a dominant and a consistent role in the ECB's interest rate decisions. There are two main explanations for this outcome.

- First, the demand for money is relatively unstable in the short run.
- Second, the sign of the interest elasticity of the demand for M3 is not clear-cut

This first problem is shown by Chart 8 which compares the year-on-year growth rate of M3 with the inflation rate in the Euro area. As the former is much more volatile than the latter, a comparison of year-on-year growth rates with a reference value must lead to erratic signals for interest rate policy. As a consequence, the use of monetary growth rates as an analytical tool makes only sense if they are applied in a medium term context.

Chart 8: M3 growth rate and inflation in the Euro area
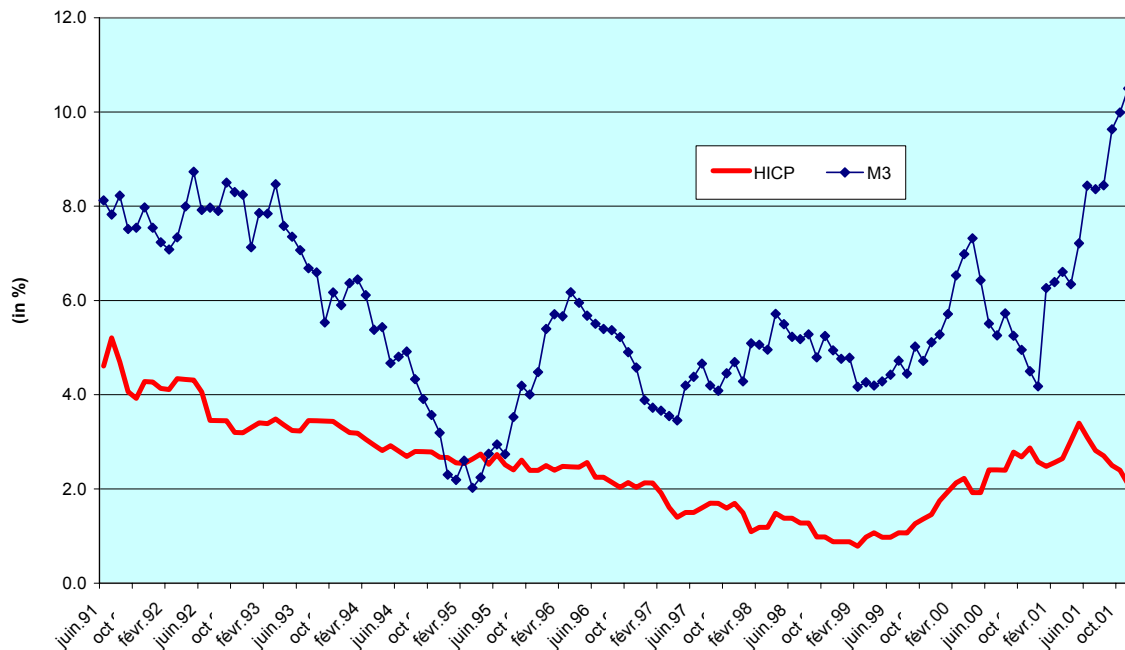
Such an exercise is now also presented by the ECB. In its Monthly Bulletin it shows data for a nominal and real money gap. The *nominal gap* is defined as the deviation of the actual stock of M3 from the level consistent with monetary growth at the reference value, taking December 1998 as the base period. The *real gap* is defined as the nominal money gap minus the deviation of consumer prices from the definition of price stability, taking December 1998 as the base period. According to the first measure there is still a positive gap of about 4 percent, according to the second measure the gap is only 1 percent. While such an exercise is much more adequate than an analysis of year-on-year rates, it is nevertheless a rather ad-hoc solution:

- First, the calculation of money gap on the basis of December 1998 is only adequate, if this base period is characterised by an equilibrium of money holdings. The ECB has so far not addressed this issue.
- Second, the calculation of a real money gap using the actual deviation of consumer prices from price stability neglects the relatively long lags (about 6 quarters) between monetary impulses and the price level. In other words, the inflation that took place between December 1998 and November 2002 has been the result of the monetary growth in the period between, say, June 1997 and Mai 2001.

The second main problem of the first pillar is related to the interest elasticity of M3. In many public speeches in the year 2000 the representatives of the ECB tried to justify the increase of the ECB's interest rates with the strong growth rate of M3. This implies that an increase in short-term interest rates would have a negative effect on the demand for M3. However, empirical estimates for the demand for money in the Euro area by ECB economists (Coenen and Vega 2000) have come to the conclusion that such a negative interest rate elasticity exists only for the *spread* between along and short term interest rate. In other words: An increase in the short term rate that leaves the long term rate unchanged has a *positive* effect on the

demand for M3. This has now been implicitly recognised by the ECB, when it has tried to explain the strong growth rate of M3 with the "flat yield curve". [7]

All in all, the first pillar of the ECB's strategy cannot be regarded as a "heuristic" in the sense that it facilitates the understanding of the ECB interest rate decisions. On contrary, the continuing overshooting of the reference value on the basis of unrevised data, the strong ad-hoc adjustment of the underlying data and the unclear impact of short-term interest rates on M3 growth have created a permanent source of confusion about the rationale of the ECB's policy.

The second pillar: Too broad to serve as a guidepost for monetary policy

The second pillar of the ECB's strategy looks, at first sight, very similar to an inflation forecast. However, the ECB tries to avoid that term "forecast" although it is not clear why an "assessment of the future inflation outlook" is conceptually different from an "inflation forecast".

The ECB intends to base this assessment on "a wide range of economic indicators" which "will include many variables that have leading indicator properties for future price developments". They "include inter alia:

- wages,
- the exchange rate,
- bond prices and the yield curve,
- various measures of real activity,
- fiscal policy indicators,
- price and cost indices and
- business and consumer surveys". (ECB 1999a, p. 49)

While it is certainly important that a central bank analyses all these variables when it takes its interest rate decisions, one has to ask whether this can already be regarded as a "strategy". If one regards as a minimum requirement for a strategy that it provides at least some reduction of the complexity of the decision process, the simple enumeration of many variables is by itself not yet something that would deserve the label of a "monetary policy strategy".

Thus, it is difficult to see the role of the second pillar for the internal decision making of the ECB as well as for its dialogue with the broader public. Of course, the ECB can always explain an interest rate decision with one or several of the variables that are included in the second pillar. But this would be also the case, if the ECB had no announced strategy at all.

In sum, while the first pillar is too narrowly focused on the money stock M3, especially if the year-on-year rates are used, the second pillar is much too broad to provide any guidance for the ECB's internal decisions or its dialogue with public. This has the negative consequence that, when looked from the outside, the status quo is not very different from a situation without any announced strategy. The lack of a clear framework for an assessment of the ECB's monetary policy became especially apparent in the second half of 2001 when more and more observers criticised the ECB for reducing its interest rates too little and too late. While it is certainly true that a deceleration of growth took place in 2001, it is not obvious that the ECB could have avoided such an outcome without threatening its target of price stability.

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[7] See e.g. Duisenberg (2001), Press Conference 30 August 2001

The ECB's interest rate policy in the light of the Taylor rule

An alternative conceptual framework for an analysis of these important issues is provided the Taylor rule.[8] The analytical core of this interest rate-based "feedback rule" is the notion of a "neutral short-term real interest rate" (Blinder 1998) which indicates a neutral setting of a central bank's operating target. While it is difficult to derive such a rate theoretically, in practice it is normally calculated as a long-term average. For the Euro area often the average of German short-term real rates is chosen, since the ECB has been constructed after the model of the Bundesbank. In the period from 1960-98 the average short-term real rate in Germany was 2.8 %. [9] Its important to note that this is a relatively low benchmark; in the period 1990-98 the average short-term real rate in the Euro area was 4.5 % (ECB 1999b).

As a central banks must act in nominal terms, even if thinks in real terms, it has to add the expected inflation rate to its estimate of the neutral real rate. The Taylor rule relates the central bank's instrument to a variety of independent variables, typically deviations of actual (or forecasted) variables from their desired levels, namely

- an inflation gap, i.e. the difference between the inflation rate and a target rate for inflation, and
- the output gap, i.e. the difference between GDP and potential output.

In the original version of the Taylor rule both gaps are weighted with a factor of 0.5. Many studies have shown that such a rule mimics actual central bank behaviour with considerable accuracy over a wide range of countries. By adjusting the neutral rate for these gaps the rule provides for an interest rate response to demand shocks which affect both gaps in the same direction. Several theoretical studies have shown that this heuristic leads to fairly good results in different model environments.

In our present context it would be of interest to understand whether a suitable specified Taylor rule adequately mimics the ECB's setting of its short-term rate. An estimation of a Taylor rule poses some difficult questions:

- What is the best estimate of the neutral real rate?
- Should the gaps refer to actual or to forecasted values of inflation rate and the output gap?
- Should the headline or the core inflation be used for the inflation term?
- Which weights are adequate for the two gaps?

It is quite instructive to find out with which parameters the interest rate policy of the ECB can be simulated. Chart 9 shows a three different versions of a Taylor rule which come more or less close to the actual values of the overnight rate in the Euro area (EONIA). For all three versions the rule has been calculated as follows:

- For the neutral short-term rate we assume a value of 2.8 which comes close to the average for the Bundesbank's era in Germany.

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[8] The rule is named after the U.S. economist John B. Taylor. He detected this rule when he tried to explain the actual interest rate policy of the Fed in the years 1987-82; Taylor (1993)
[9] By the way, for the United States during the same period, the average is also 2.8 %.

- For the output gap we use the annual *forecasts* from the bi-annual OECD Economic Outlooks in real time. In order to use monthly values we calculate monthly data for the output gap as an average of the annual values for the respective years.[10]
- We assume that the ECB knows the forecast values one month ahead of their publication.

Taylor rule 1 is the most basic version with the *actual HICP rate* and with an equal (0.5) weighting of the output gap and the inflation gap. Chart 9 shows that during most of the time the actual short-term rate has been much lower.

This is different with Taylor rule 2 which uses the *core inflation rate* instead of the HICP. Until May 2001 this rule comes relatively close to the actual interest rate policy of the ECB. It indicates that in the second half of 2000 the ECB's rates could have been about 50 basis points lower. In the second half of 2002 the fit gets lost but this seems to mainly due to the fact that the OECD has made internal revisions of its forecasts. With data of the December 2001 outlook the Taylor rate comes closer to actual rate, but it is still higher. This provides some indication that the ECB is willing to give some additional stimulus to the Euro area. It is interesting to note that the actual interest rate policy of the ECB can be mimicked best by Taylor rule 3. It gives the output gap a weight of 1 and weights the inflation gap with 0.

The most important result of this simulations is that the ECB's interest rate policy can be explained too a large part with a fairly standard version of the Taylor rule. As the Taylor rule provides for a anticyclical response of monetary policy in the situation of demand shocks, this indicates that the ECB's policy has shown a responsiveness to the developments in the real economy. While it is difficult to find out whether this response was sufficiently strong, one can see that at the end of 2001 the ECB's interest rate was definitively lower than the simulated values for all three versions of the Taylor rule.
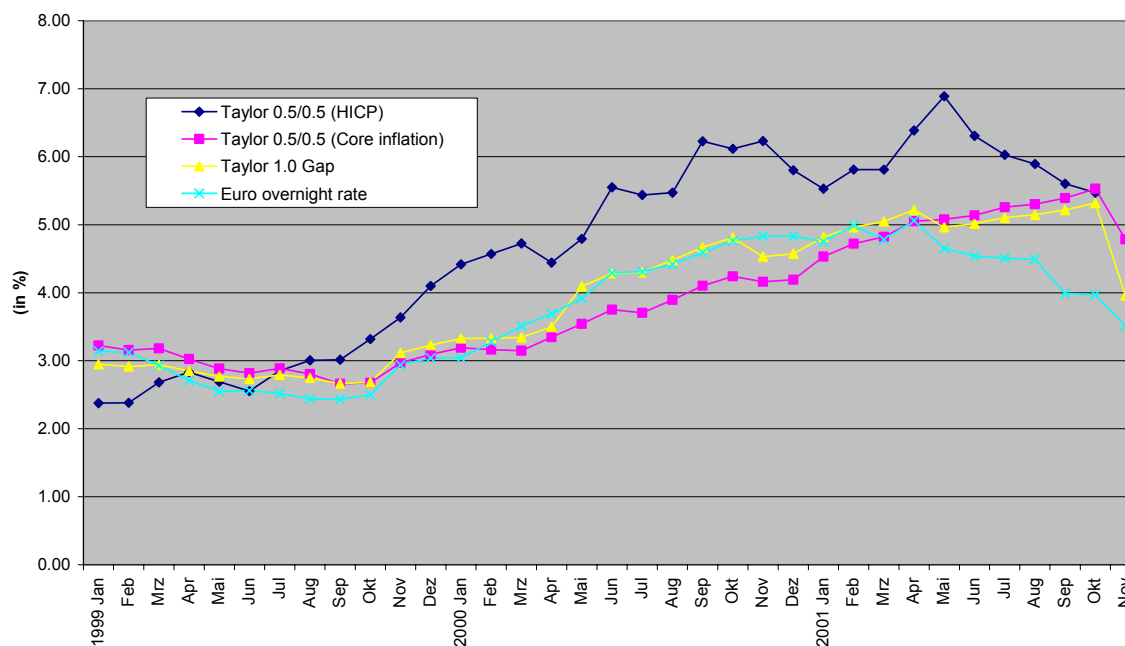
Thus, in contrast to the ECB's rather confusing strategy an interest rate-based heuristic like the Taylor rule is able to provide some insights in the way of how the ECB has taken its interest rate decisions. Above all, one can see that the ECB is pursuing a policy that is willing to take expected demand shocks into account. As the overall economic performance of the Euro area in the first three years of the ECB's policy has been satisfactory especially in comparison with other central banks, this approach has so far been quite successful.

The gap between the ECB's marketing and its "true approach"

This assessment leads to the interesting conclusion that the ECB is proclaiming a policy strategy that differs substantially from its actual policy. Thus, instead of making monetary policy more transparent the ECB's strategy is obscuring the actual determinants of its interest rate decisions. While in theory this should impair a central bank's credibility, we have seen that according to standard indicators of credibility the ECB's credibility is very high. This astonishing result seems to indicate that in spite of its prominence in academic circles, financial market participants do not pay to much attention to the announced strategy of a central bank. In fact, the Fed's monetary policy has so far enjoyed a very high reputation although it was never based on a comprehensive strategic framework. Obviously, in the area of central banking deeds seem to be much more important than words.

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[10] For instance, for May 2000 we have calculated the output gap as an average of 8/12 of the annual output gap forecast for year 2000 and 4/12 of the annual output gap forecast for the year 2001.

Chart 9: Taylor interest rates and the Euro overnight rate

The y-axis is labeled "(in %)" with values from 0.00 to 8.00. Legend:
- Taylor 0.5/0.5 (HICP)
- Taylor 0.5/0.5 (Core inflation)
- Taylor 1.0 Gap
- Euro overnight rate

X-axis spans 1999 Jan through 2001 Nov.

The weak Euro: Fundamentals versus psychology

The good economic performance of the Euro area, especially until the first half of the year 2000 was in the public perception strongly overshadowed by the depreciation of the Euro vis-à-vis the Dollar but also the Pound Sterling, the Yen and even some currencies of countries in Eastern Europe. The depreciation reached its maximum on 25 October 2000 when the Euro had lost 30 % of its value vis-à-vis the Dollar. Since that date the Euro has somewhat recovered but in the whole year 2001 it could not significantly appreciate above the 90 cent level.

The weakness of the Euro has led to an intensive public and academic debate about its determinants. Among a host of explanations three arguments have received a special attention in this debate:

- The Euro is weak because of an underlying weakness in the Euro area's economic fundamentals, especially in relation to the US economy.
- The Euro is weak because of the specific institutional and political framework of the Euro area with a single central bank but 11 (and later 12) national fiscal policies.

The role of fundamentals

Adherents of the first argument referred to the unresolved structural problems, above all on the Euro area's labour markets, the growth and the interest rate differential vis-à-vis the United States. As far as the structural problems are concerned, a main flaw of this explanation is that they were already existing long before the introduction of the Euro so that with forward looking financial markets this information should have been incorporated in the exchange rate before 1999. In fact, if one compares the overall situation of the Euro in 1995 – when the Dollar was extremely weak vis-à-vis European currencies – with the year 2000 (which we have already described in detail) it is hard to deny that a significant improvement has taken place on labour markets and in terms of sound public sector finances.

Chart 10: DM(€)/$ exchange rate and fundamentals
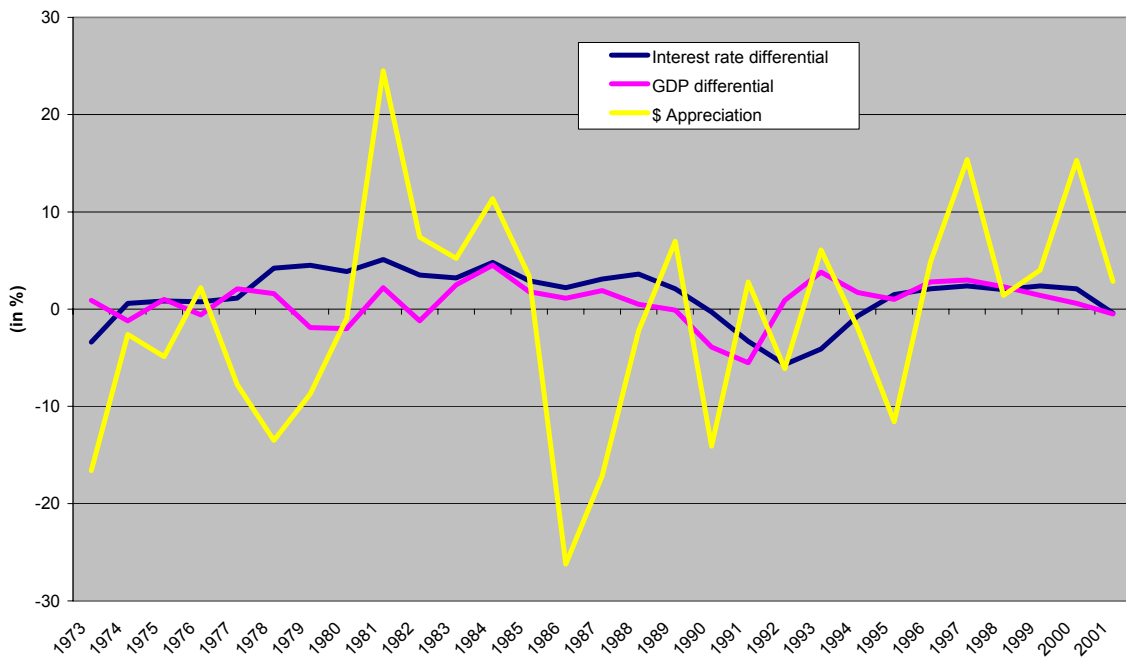
The argument that the Euro has declined because of the growth and interest rate differential vis-à-vis the United States sounded very convincing in 1999 and 2000, but it became more dubious in 2001 when US interest rates fell below the rates of the Euro area and when the growth differential turned in favour of the Euro area. The ad-hoc nature of this argument was also reflected by the weakness of the Euro vis-à-vis the Japanese Yen. Until October 2000 the depreciation was as strong as the depreciation vis-à-vis the Dollar although the Japanese economy had to cope with much more serious structural problems than the Euro area and a much weaker growth rate of real GDP.

Chart 10 shows that over a long term horizon the changes in the DM-Dollar exchange rate (and since 1999) the €-Dollar exchange rate cannot be systematically explained with the values of the growth and the interest rate differential. The Chart demonstrates the general phenomenon that the volatility of financial market prices is much higher than the volatility of underlying fundamentals.[11] Thus, the weak Euro is above all an additional proof for the fact that under a system of flexible exchange rates fundamentals have no systematic influence on short- and medium-term dynamics of the exchange rate. [12]
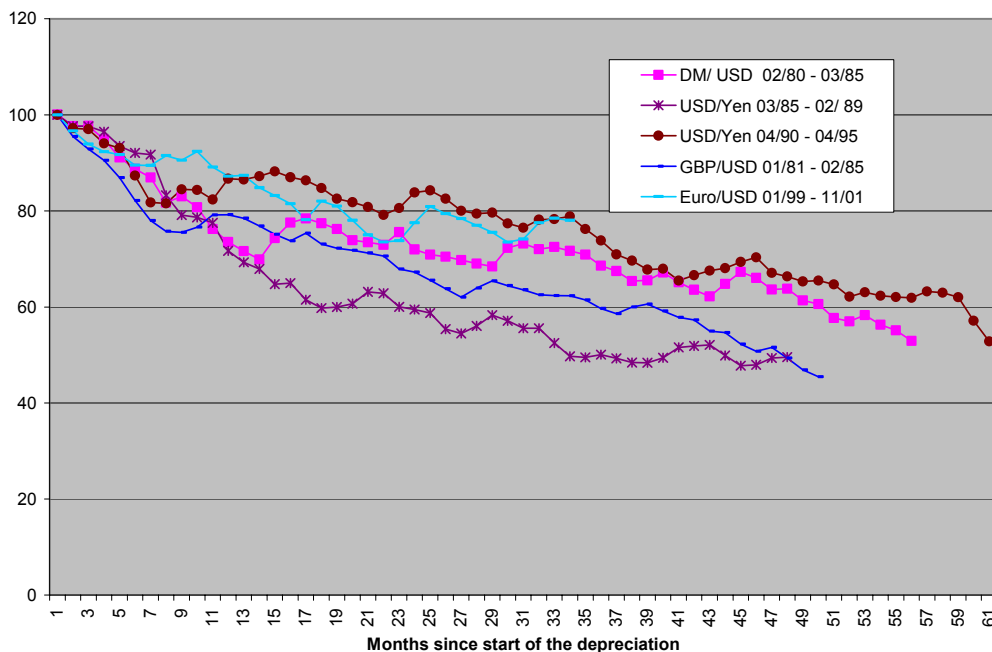
The Euro depreciation in a longer perspective

A second argument for the explanation of the weak Euro is related to specific institutional and political environment under which the new European Central Bank is operating, above all to a lack of a strong political union. In a similar vein some observers argued that the European currency would suffer from the risks that are associated with the forthcoming enlargement of the European Union by countries from Central and Eastern Europe. For a discussion of this

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[11] See Shiller (2000).

[12] See also (2001, p.1): "Since the landmark papers of Meese and Rogoff (...) exchange rate economics is in a crisis. It is in a crises in the sense that current macroeconomic approaches to exchange rate are empirical failures: the proportion of monthly exchange rate changes that current models can explain is essentially zero."

explanation is seems useful to analyse the depreciation of the Euro in a somewhat broader context. Chart 11 shows the depreciations of international key currencies of a longer period of time. Compared with the historical depreciations of the D-Mark and the Dollar, the weakness of the Euro in its first three years looks not especially impressive. As it constitutes no singular event, it makes also little sense to explain it with specific political or institutional problems of the Euro area.

Chart 11: Long lasting depreciations of key currencies

Legend:
- DM/ USD 02/80 - 03/85
- USD/Yen 03/85 - 02/ 89
- USD/Yen 04/90 - 04/95
- GBP/USD 01/81 - 02/85
- Euro/USD 01/99 - 11/01

Months since start of the depreciation

Psychological determinants of the Euro exchange rate

This leads to the question whether the decline of the Euro can be explained at all. If economic fundamentals have to be excluded, what remains is the rather vague concept of "psychological factors". In financial markets research such influences have been analysed under the relatively new research programme of "behavioural economics" or "behavioural finance".[13] What differentiates this approach from standard economic theory is the assumption that the ability of the human brain of dealing with complex phenomena is very limited. As a result, instead of using complex models and processing all available information decisions in financial markets are often based on relatively simple and frugal heuristics (Gigerenzer and Todd 1999). A main characteristic of heuristics that can be observed on financial markets is an element of familiarity.[14] For instance, investors tend to prefer stocks from companies that are located in their own region ("home country bias"). An unconscious form of familiarity is the key feature of the so-called "anchor effect": decisions are shaped by a information that has nothing to do with the decision itself but it shapes the decision because it was received shortly before the decision was made.

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[13] See Shleifer (2000), Kahnemann and Tversky (1984),

[14] See also Keynes (1936, p. 148). "It would be foolish, in forming our expectations, to attach a great weight to matters which are very uncertain. It is reasonable, therefore, to be guided to a considerable degree by the facts about which we feel somewhat confident, even though they may be less decisively relevant to the issue than other facts about which our knowledge is vague and scanty."

In the case of the start of the Euro in January 1999, the lack of familiarity was especially pronounced. There was absolutely no precedence for such an endeavour and the new currency was not available in the form of bank notes and coins. In some sense, it was a "foreign" currency to everybody. In addition, the public perception of the Euro was suffering from negative anchor effect: In relation to the initial exchange on 4 January 1999 after each new depreciation a new "historical low" could be announced although – calculated in terms of the D-Mark – the true historical low is still 25 February 1985 with an exchange rate of 0.56 Dollar per Euro.

The strong impact of psychological effects in the Euro depreciation becomes also obvious by the fact that the decline could be stopped effectively with two waves of intensive foreign exchange market interventions conducted by the ECB in October 2000 (together with the United States) and in November 2000.

"One size fits all" monetary policy and its problems

With its membership in a monetary union a country has to give up its monetary policy autonomy, i.e. it can no longer use interest rate and exchange rate policy for coping with idiosyncratic shocks. While most economists regard this loss of autonomy as a main disadvantage of a monetary union, one should not overlook that especially for smaller countries it is generally very difficult to pursue a completely independent monetary policy in an open economy. As already mentioned, under flexible rates there is a high risk that a country is confronted with a depreciation or an appreciation of its exchange rate that is completely unrelated to its economic fundamentals. Therefore most member countries of the European Union had very early sought for an institutional framework which limits the short-term volatility as well as medium term misalignments of exchange rates. The European Monetary System which was established in 1979 was very useful in this regard (Bofinger 2000). However, it implied that

- the common monetary policy was set by the Bundesbank according to the requirements in the Germany economy, and
- that in periods of crisis (e.g. autumn 1992 and summer 1993) countries had to defend their parities vis-à-vis the D-Mark with excessively high nominal and real interest rates.

Thus, the main economic advantage of EMU consists in completely ruling out speculative attacks within the common currency area and at the same time providing a common monetary policy which is guided by the economic situation in the Euro currency area as a whole

Nevertheless, the problems of a "one-fits-all" monetary cannot be overlooked. Under a monetary union the central bank can target the average inflation rate only, so that at the national level higher or lower rates are possible. Thus, even if the average inflation rate is within the target range of the ECB in some countries a higher increase in prices has to be accepted. As Chart 12 shows there have been indeed strong divergences in national inflation rates. Especially in Ireland, the Netherlands, Portugal and Spain, the inflation has been higher than in the rest of EMU. For such divergences two different explanations are possible:

- an unbalanced macroeconomic policy mix at the national level, i.e. the combination of the common interest rate policy with the national fiscal policy, has led to an inflationary pressure,

- inflation has been caused by catching-up processes of member countries with below average income levels, i.e. it is due to the so-called Balassa-Samuelson effect.

**Chart 12: Inflation differences within EMU**
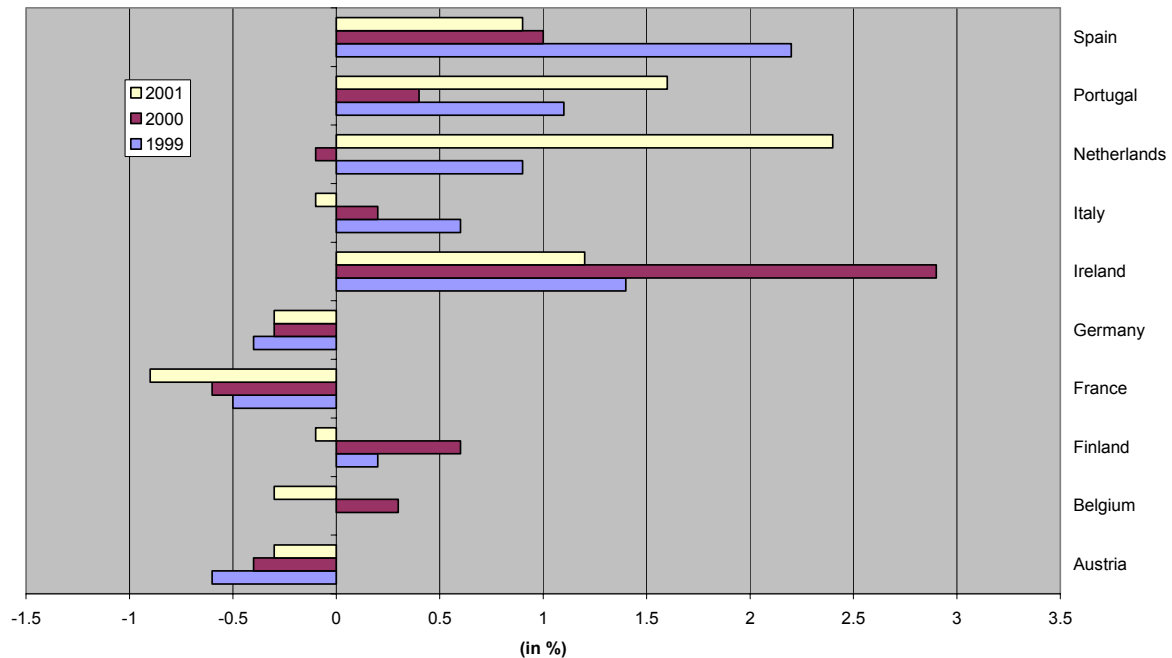
While the first cause of national inflation is a cause of concern, the second is relatively unproblematic since it reflects unavoidable structural adjustments within a currency area. In the following we try to shed some light into these important issues.

The mix of EMU monetary policy and national fiscal policies

If a national economy is confronted with an idiosyncratic demand or supply shock, the only available policy instrument is the national fiscal policy. However, the usage of the instrument is limited by the restrictions set by the Stability and Growth Pact, above all the 3 % limit for budget deficits. This requires a solid fiscal policy in years without shocks so that national fiscal budgets are more or less in equilibrium. Only then a country possesses the necessary breathing space for situations with negative demand shock, i.e. room for manoeuvre for the operation of the automatic stabilisers and also for some discretionary fiscal policy measures.

In order to assess whether the national fiscal policies in EMU have been able to fulfil this compensating task we calculate first the deviation of a national Taylor rule interest rate from actual Euro interest rate. For this purpose we use the most simple variant of a Taylor rate, i.e. we simply calculate the sum of a average short-term real rate of 2.8 %, the national (headline) inflation rate, the inflation gap (i.e. the difference between the headline rate and a target rate of 2 %) times 0.5 and the actual output gap (of the December 2001 Outlook) times 0.5. The difference between these two rates is shown in Chart 13. It shows that for the three large economies the average euro interest rate has been more or less in line with national Taylor rate. Continuing large discrepancies can be identified for Ireland, the Netherlands, Portugal and Spain. For Finland only in 2000 an overly expansionary interest rate can be identified.

Chart 13: Divergences of the national Taylor rate from Euro short-term interest rate
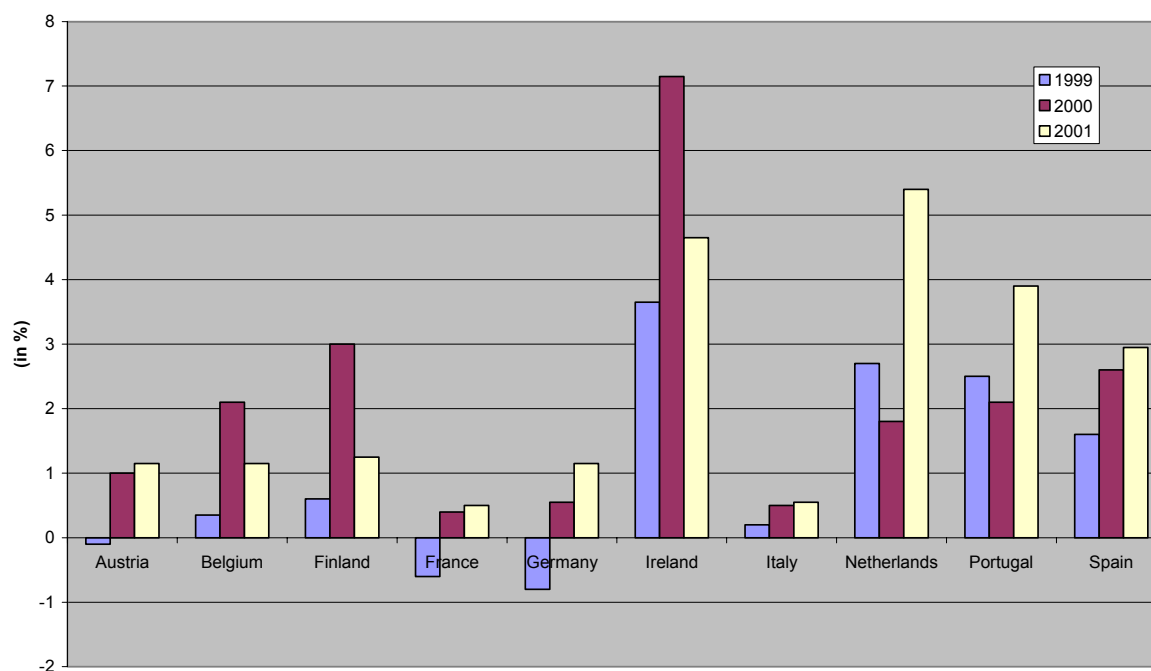
In cases of an inadequate monetary policy stance the question arises whether a counteracting national fiscal policies has been implemented. This would require that a restrictive fiscal policy has been followed in the four EMU countries where interest rates have been definitively too low. For an assessment of the stance of fiscal policy, the structural fiscal deficit is a good indicator since it allows to identify the discretionary actions of policy-makers. Chart 14 shows a very high structural surplus for Finland and Ireland, which has been somewhat reduced in 2001. This parallels to some degree the reduced discrepancy of interest rates. In contrast to these two countries, in Portugal no offsetting fiscal policy can be detected. The country has a very high structural deficit and has made little efforts to consolidate it. In Spain, the deficit is lower, but there are also no indications that fiscal has tried to compensate the monetary policy stance. In the Netherlands, pronounced changes in structural budget balance have taken place which have counteracted the effects of relatively low interest rates. In addition, because of an increase in indirect taxes in the Netherlands, the Taylor rate for 2001 shows an upward bias.

The only case for a too restrictive policy mix is Finland which has achieved a very high surplus in its structural fiscal balance in 2000 and 2001. As a result and also because of the weakening of the global demand for ITC products this country has experienced a much stronger deceleration of GDP growth in 2001 than all other EMU members: its growth rate declined form 5.7 % to 0.7 % compared with EMU average growth rates of 3.4 and 1.5 respectively.

**Chart 14: Structural deficits in EMU member countries**
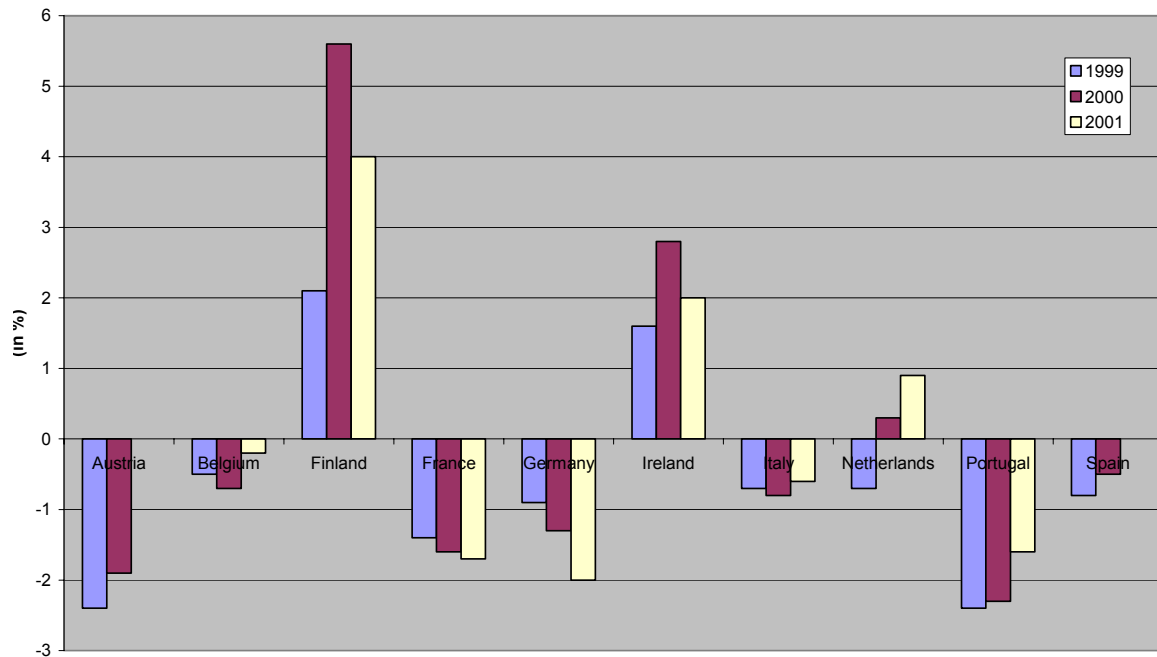
With the strong deceleration of growth and the overall instability of the global economy in 2002, the question arises whether the SGP leaves enough scope for discretionary action at the national level. Chart 15 shows that even after taking into account the effects of the automatic stabilisers most countries have still more than one percentage point for additional discretionary fiscal policy measures before reaching the 3 % threshold of the SGP. The only, but very important exception is Germany. This country will not only experience an above average output gap in 2002, but with a projected deficit of 2.5 % has only very little room for manoeuvre left. Here, the very arbitrarily set limits of the Stability and Growth Pact prevent a stronger fiscal impulse which seems clearly warranted given the below average GDP growth performance of Germany in 2002.

The Balassa-Samuelson effect

As already mentioned, in a monetary union the common monetary policy can only target an average inflation rate. In addition to an inadequate policy mix divergences of the national inflation rate from the EMU average can be due to catching-up processes of member countries with below average income levels. In this case an above average inflation performance is due to the fact that high productivity increases in the manufacturing sector make it possible to provide generous wage increases for the workers in this sector. This has a strong tendency to affect wages in other sectors of the economy, above all services, where productivity increases are lower or even absent. As a result the national price index which consists of traded goods (with a low increase in unit labour costs) and non-traded goods (with a relatively high increase in unit labour costs) shows a stronger increase than in the more wealthy countries of a monetary union. Thus, because of this so-called Samuelson-Balassa effect it is unavoidable for catching-up countries to accept an inflation rate somewhat above the target range of the ECB. As most studies on the costs of inflation show (Barro 1997), such the costs of such a divergence are relatively low.

Chapter 15: Breathing space for national fiscal policies in 2002 and output gaps
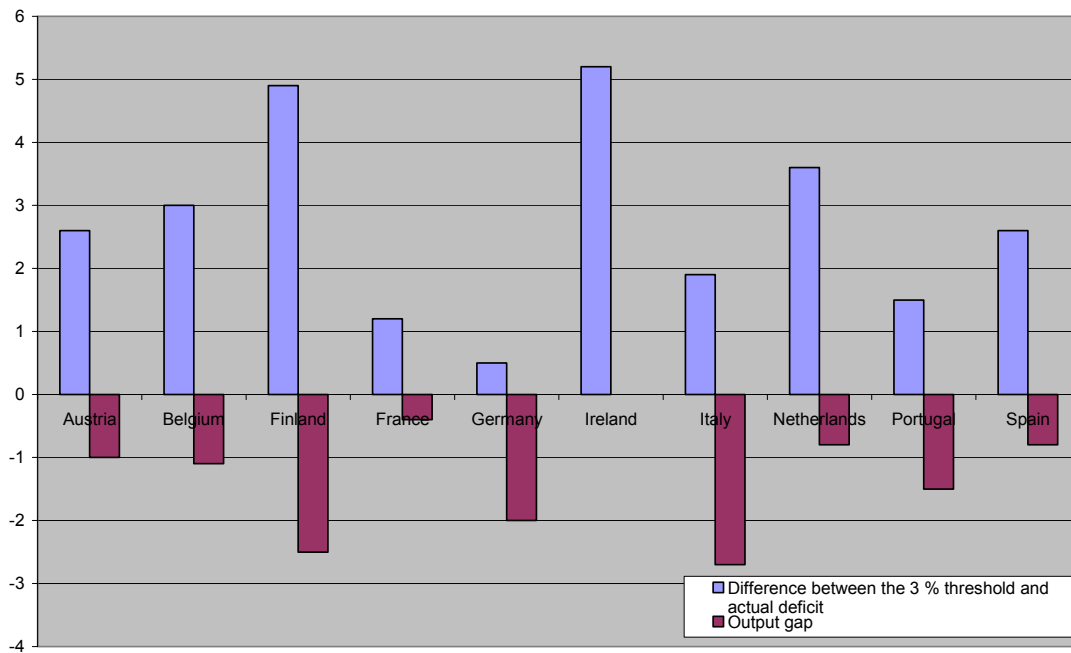

In reality, it is not so easy to disentangle the inflation that is caused by the Samuelson-Balassa effect from inflationary processes that are caused by a macroeconomic imbalance and excessive national wage policies. While the former is relatively unproblematic the latter tends to threaten a country's international competitiveness over time. In Chart 16 we present several indicators for an overheating in the period 1999 to 2001:

- *unit labour costs in manufacturing:* We calculate the difference between the increase in unit labour costs in the two countries with lowest average annual increase (Germany and Austria) and the average increase in other member countries. If the Samuelson-Balssa effect is in operation, differences in unit labour costs should be very low.
- *export performance*: this indicator which is calculated by the OECD measures the growth of national exports in comparison with the growth rate of a country's export markets.
- *current account deficit:* especially over a longer period of time this indicator shows whether a country is "living beyond its means", it can therefore be used as an indicator of macroeconomic imbalance and to some degree also as an indicator of competitiveness.

For the three largest EMU member countries Chart 16 shows a rather balanced situation. Only Italy has a somewhat deteriorating export performance. For the smaller countries the results are more diverse. Again for Portugal all indicators show a very bleak picture: a strong increase in unit labour costs combined with a negative export performance and a very high current account deficit. Thus, the macroeconomic imbalance that we have identified in Charts 13 and 14 has obviously led to a high wage pressure and to negative effects on the international competitiveness of Portugal. In all other smaller countries the diagnosis is more difficult. In Ireland the above average inflation seems mainly related to the Balassa-Samuelson effect. Its increase in unit labour costs – compared to the EMU countries with the lowest wage pressure – is relatively small. Its export performance has been better than in all other EMU countries and the current account shows a very small deficit. In Spain the wage pressure is relatively high and the current account deficit is the second largest of all EMU

countries, but its export performance has been positive in each year. In the Netherlands, the wage pressure is almost as high as in Portugal which fits with the indication that the Euro interest rate was much too for this country. But so far, neither the export performance, nor the current account have been negatively affected. Thus, from the four countries with an above average inflation, Portugal is an obvious case for a major macroeconomic imbalance. Indications for a somewhat overheated economy can be found in Spain and the Netherlands.

Chart 16: Indicators of inflationary pressure in EMU countries (annual averages in the period 1999-2001)
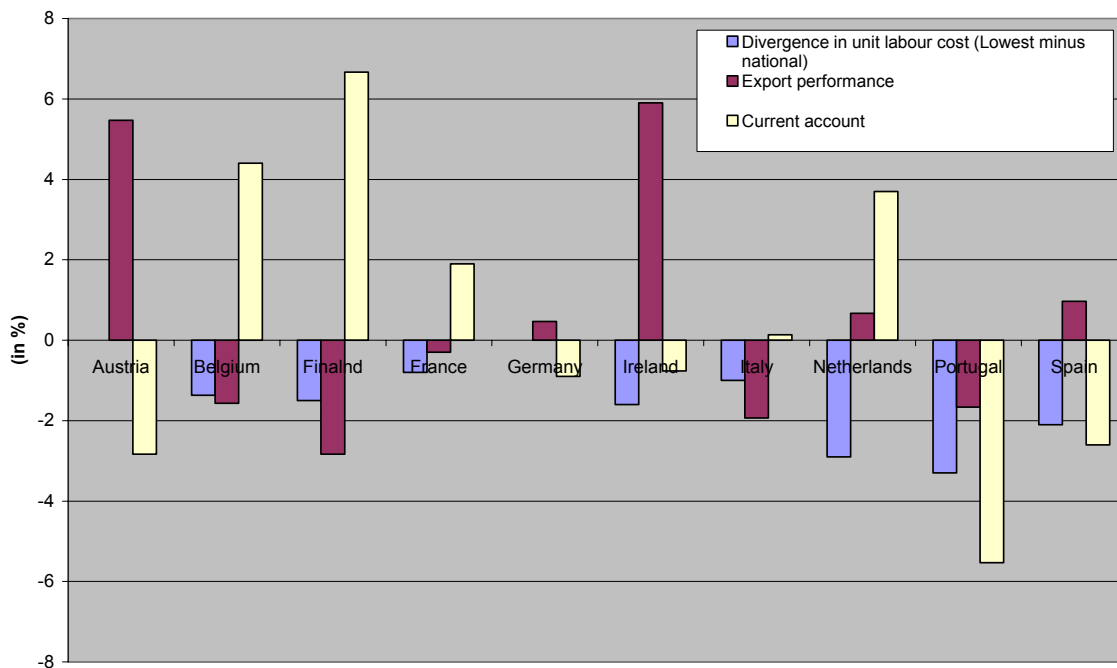
The challenge of eastern enlargement

In the coming years the most important challenge for EMU is the eastern enlargement of the European Union. It opens the European Monetary System II and – after meeting the criteria of convergence – EMU to the countries in Central and Eastern Europe. From the perspective of present member countries the economic significance of the prospective EMU entrants is relatively limited. As far the five lead accession countries are concerned (Czech Republic, Estonia, Hungary, Poland, and Slovenia), their share in a common GDP would be only 3.1 %.[15] The share of all accession countries (including Cyprus and Malta, but excluding Turkey) is 4.1 %. Thus, the overall economic performance of the Euro area is affected only too a very limited degree by developments in individual countries of this. However, the relatively low economic potential of the accession countries is also a matter of concern since their average GDP per head is only 44 % of the EU average.[16]

For an assessment of this issue it seems important to note that the main impact of EMU membership is a fundamental transformation a country's monetary constitution which generates an enormous degree of monetary policy independence. Even if under a national law monetary policy is granted independence, the law can always be changed and there is still some informal and formal influence of the national government, e.g. by being able to

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[15] As this estimate is made for the medium-term we include the United Kingdom, Sweden and Denmark in the Euro area.
[16] Excluding Turkey.

nominate the Governor and members of the board. In contrast, EMU provides a supranational monetary order, which a country can only give up if it decides to leave the European Union altogether. The monetary stability provided by EMU is an important advantage for all accession countries, especially as it also excludes the risk of speculative attacks and risk premia which is the main problem of a currency board arrangement.

Because of the marked differences in incomes levels one can expect that the accession countries will be able to realise a strong catching up process in the next decades. This leads again to the problem of the Balassa-Samuelson effect. According to several studies this effect could lead to an annual real appreciation in the accession countries in the order of magnitude of 0.7 to 2.6 % p.a.[17] If one assumes, that under a fixed exchange rate, this would be translated into an excess increase in the price level of the accession countries, one can calculate its impact on the average inflation rate of the Euro area for different sizes of an enlarged Euro area. For the estimates in Table 2 we assume that the EU-15 achieve an inflation rate of 2%.[18] It shows the effects of the Balassa-Samuelson effect on the average inflation rate are extremely low under in all cases.

Table 2: Estimates for the inflation rate in an enlarged Euro area (in %) (under the assumption of 2 % inflation in the EU-15)

Projected inflation in the CEEs (in %)	EU 21	EU 27
2,70	2,02	2,03
4,60	2,09	2,12

Source: Own calculations based on Bundesbank 2001

Another reason for a rather optimistic assessment of the enlargement is the experience with *System of Bretton Woods* in the post-war period. After the huge destruction of the war it provided the European economies a very stable monetary framework, above all low real interest rates. As in the 1950s and the first half of the 1960s realignments were very rare, it came very close to the arrangement of a monetary union. The "Wirtschaftswunder" of the 1950s which was not limited to Germany shows that a stable monetary framework can be very useful for catching up processes.

The first three years: more successful than expected

All in all there is no doubt that in its first three years of European monetary union have been a success. Against all odds the ECB has been able to achieve a high degree of credibility from the very outset. It has followed a pragmatic interest rate policy which did respond to the difficult macroeconomic shocks with which it was confronted. There are no clear indications that the ECB could have avoided the weak economic situation at the end of 2001 without threatening price stability in the medium term. It is important to note that at the aggregate level fiscal policy has adopted a very passive role so that the whole burden of macroeconomic management had to be borne by the ECB.

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[17] De Broeck and Slok (2001) estimates for the CEE-10 a rate of 1.4–2.0 (1991-98). ECE (2001) comes to a rate of 2.0–2.2 (1991-99) for the CEE-10 excluding Bulgaria and Slovakia. Coricelli and Jazbec (2001) calculate a rate of 0.7–1.2 (1990-98) for the CEE 19. Bundesbank (2001) comes to a rate of 1.9–2.6 for the CEE-10 in 1994-99.

[18] .

The ECB's communication strategy needs a major revamping. While monetary growth is an important variable, there is no reason for treating it as an independent pillar with a similar prominence as an inflation forecast or an overall assessment of the outlook for future price developments. It would be useful to integrate both pillars and to pay much more attention to indicators that are based on real interest rates. It would be also helpful to present in the Monthly Bulletin a more systematic and more regular survey of important indictors for future inflation (e.g. results of wage negotiations, surveys of inflation expectations of households and managers, inflation forecasts by banks and research institutes, implicit inflation forecasts in financial market prices).

The problem of the "weak euro" was clearly overstated by the media. In historical perspective the depreciation of the euro is nothing extraordinary. It mainly confirms the evidence that fundamental macroeconomic factors have no consistent impact on the decisions of FX traders and investors. The fact that trade within the euro area is no longer impaired by such decisions constitutes one of the most important advantages of EMU.

As far as the impact of the common monetary policy on the individual member countries is concerned, some of the smaller countries had problems to achieve a balanced policy mix. But over the whole period only in the case of Portugal a clear imbalance can be detected where fiscal policy would have required a much more restrictive stance. This shows above all that it is not enough to focus on the appropriateness of the fiscal deficit in isolation, rather it has to be assessed on the basis of the adequacy of the average Euro interest rate for the national economic situation.

The case of Ireland shows that the Balassa-Samuelson effect can temporarily lead to a relatively high national inflation rate without threatening a country's international competitiveness. In this situation it is necessary to counteract the economic overheating with a sufficiently restrictive fiscal policy. As inflation in Ireland will come down to about 3 ½ % in 2002, in retrospect Ireland has been able to achieve a rather successful policy mix in a difficult environment.

With the eastern enlargement EMU will be confronted with relatively poor new members. On the one hand, this lack of real convergence will increase the problems associated with the Balassa-Samuelson effect. On the other hand it has the advantage that economic developments in these countries affect the Euro average only marginally. In addition the example of the Bretton Woods System shows that a stable monetary framework can provide an important stimulus for strong catching up processes.

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