

OPTIMUM CURRENCY AREA: EURO AS A PRACTICAL PARADIGM?

by

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Abstract

Several economists have argued that "Euroland" (the 12 countries that have adopted the Euro) is not an Optimum Currency Area. One reason for this argument is that Robert A. Mundell indicated that an essential ingredient of a "currency area is a high degree of factor mobility." At present there is neither a high degree of factor mobility within Euroland nor factor immobility outside Euroland. However Mundell has advocated that "Monetary union will do much to integrate Europe's commodity, factor and capital markets."

This paper reviews the criteria of optimum currency areas and evaluates the performance of Euroland in its first 18 months of existence. The Euro has had some successes but still furnishes evidence of some disappointments to its critics. One major achievement is the expansion of the European commercial bond market. The European System of Central Banks (ESCB) succeeded, in its conduct of monetary policy, in fostering a strengthening of demand that will result in a faster growth of output. Introduction of the EMU has resulted in reduced fiscal deficits.

The critics have argued that the Euro has failed because it has depreciated against the dollar and the yen. We should note, however, that the exchange rate is a price, a decline in which is NOT a failure. This paper examines reasons for the depreciation and subsequent currency movements.

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I. Introduction

Several economists have argued that "Euroland" (the 12 countries that have adopted the Euro) is not an Optimum Currency Area. One reason for this argument is that Robert A. Mundell indicated that an essential ingredient of a "currency area is a high degree of factor mobility."¹ At present there is neither a high degree of factor mobility within Euroland nor factor immobility outside Euroland. However Mundell has advocated that "Monetary union will do much to integrate Europe's commodity, factor and capital markets. It will increase Europe wide competition and revolutionize financial markets."² Labor and capital will move more freely in the future due to the existence of EMU today. As Frankel and Rose emphasize, "Trade patterns and income correlations are endogenous. . . (A country) could fail the OCA criterion for membership today, and yet, if it goes ahead and joins anyway, as the result of joining, pass the OCA criterion in the future."³ Is "Euroland" today an Optimum Currency Area under the strict criteria originally set forth by Robert Mundell? No; however, if trade patterns and income correlations are endogenous, it will be more likely to satisfy the OCA criteria in the future.

This paper reviews the criteria of optimum currency areas and evaluates the performance of "Euroland" in its first 18 months of existence. The Euro has had some successes but still furnishes evidence of some disappointments to its critics. One major achievement is the expansion of the European commercial bond market. The European System of Central Banks (ESCB) succeeded, in its conduct of monetary policy, in fostering a strengthening of demand that will result in a faster growth of output. The introduction of EMU has resulted in reduced fiscal deficits, inflation and unemployment. To its critics (primarily in the US)

the major disappointment has been the depreciation of the Euro, but that price should be market determined and a decline is NOT a failure. Effective 2002 the Euro will be the only currency in Euroland, and much of the European objections to the Euro have faded.

In the next section we look at the theoretical description of an Optimum Currency Area. In section III, we examine the benefits and costs of Optimum Currency Areas and Monetary Unions. A brief description of the process that led to the creation of the Euro and EMU is found in section IV. The convergence criteria for membership in EMU are listed in section V. The Central Banking System of the EMU and its conduct of monetary policy is detailed in section VI. The depreciation of the Euro vis-à-vis the dollar and yen is discussed in section VII. Some of the successes of the Euro and EMU are found in section VIII. The paper's conclusions are in section IX.

II. Optimum Currency Area

Traditional literature suggest structural criteria, e.g., factor mobility (Mundell, 1961), trade integration (McKinnon, 1963) and regional production patterns (Kenen, 1969) to assess if a region is an Optimum Currency Area. Other literature (Marston, 1984) emphasized the importance of flexible exchange rates between regions experiencing asymmetric shocks or differences in shock-absorbing mechanisms. More recent literature has focused on which countries should participate in EMU (von Hagen and Neumann, 1994; Frankel and Rose, 1997) or whether there should be an EMU (Mundell, 1969, 1998; Feldstein, 2000).

In 1961 Robert A. Mundell defined the Optimum Currency Area, as "a domain within which exchange rates are fixed." He indicated that an essential ingredient of a "currency

area is a high degree of factor mobility." Ronald McKinnon expounded on this theory in 1963 by discussing the influence of the openness of the economy, i.e., the ratio of tradable to non-tradable goods, on the problem of reconciling external and internal balance, emphasizing the need for internal price-level stability."

There has been academic opposition to the idea of monetary union, from both Keynesians and monetarists. The Keynesians feared the removal of devaluation as a weapon of policy. The monetarists' objections range from the threat that the Euro might bring the dollar to its knees to the political possibility that it will create civil war in Europe! Art Laffer warned that weakness in the euro "is putting the entire fabric of Euroland in harm's way," in a June 7th essay entitled "A Note from the Doctor, Europe's Mad Duisenberg Disease."

Economists who have looked at Europe, ask, in the manner of Mundell, whether it is an optimal currency area? Usually they answer "No." Factors are not sufficiently mobile between countries: this factor mobility makes the exchange rate a useful price-adjuster, under certain circumstances.

Mundell, however, believes that Europe is, in practice if not in theory, an optimum currency area. He is an enthusiast for Europe's single currency. Although it may not fit the strict interpretation of an OCA, Mundell made a case for the Euro (using the name "europa" rather than "euro") in 1969. At that time the Hague Summit was setting up the Werner Committee to develop a plan for an economic and monetary union. Mundell believes that the world is an optimal currency area, and has long argued for a return to the gold standard, as the next best thing to a single currency for the world.

How can these positions be reconciled? Mundell indicates that his point all along was as follows. A flexible exchange rate is only valuable if shocks are felt across entire currency areas. In fact shocks tend to hit regions that lie within such areas (as when cheap oil hurts Texas and helps New England states). Taken to an extreme, the logic of the optimal currency area approach would state that the world requires a proliferation of currencies, so that every area subject to shocks has its own currency. But Mundell argues against this proliferation of exchange rates for each sub-region. Consequently, Texas, however far the price of oil drops, will never demand its own currency; likewise Yorkshire, England, even though the decline of the coal industry may have called for a devaluation. Similarly, in Italy, the industrialized Genoa-Milan region and the southern Mezzogiorno region can be in different phases of the business cycle, but they had not called for two separate Lira. Flexible exchange rates will not help solve regional unemployment problems

III. Benefits and Costs of Optimum Currency Areas and Monetary Unions

Benefits are the reduction in transactions costs that previously resulted from currency exchanges. Costs of a monetary union are the loss of the ability to operate separate monetary and exchange rate policies. The policy dilemma is that a country cannot simultaneously have: free capital flows, fixed exchange rates, and independent monetary policy.

A. Benefits of Monetary Union

The most direct and immediate benefits are reduced transaction costs and the elimination of exchange-rate uncertainty. A third benefit is enhanced efficiency and competitiveness of the European economy. There was a popular saying in Europe that if one traveled

through all 15 EU countries, changing money in each country but not actually spending it, he/she would return home with only half the original amount. With countries using the same currency, transaction costs are reduced; the consensus estimation is 0.4 percent of Europe's GDP.⁴ The elimination of exchange rate uncertainty will result in saved hedging costs for companies that previously hedged exchange rate risk. Consumers will benefit, as increased price transparencies will promote Europe-wide competition, resulting in less inflation. Reduced transaction costs and elimination of currency risk will promote cross-border investment and trade. By furthering economic integration of Europe, the Euro will promote corporate restructuring via mergers and acquisitions, encourage optimal business location decisions, and ultimately strengthen the international competitive position. Utilizing the Euro and coordinating monetary policy with the European System of Central Banks creates the development of European capital markets with depth and liquidity comparable to those of the U.S.

B. Costs of Monetary Union

The main cost of a monetary union is the loss of national monetary and exchange rate policy independence. Let us examine a hypothetical example. Suppose Finland, a nation dependent on paper and pulp industries, faces a sudden drop in world paper and pulp prices. This price drop could hurt the Finnish economy, causing unemployment while scarcely affecting other Euroland countries. Finland faces an "asymmetric shock." An asymmetric shock is more likely to affect a country whose economy is less diversified and more trade-dependent (high ratio of traded to non-traded goods). If Finland had maintained monetary independence, the economy could lower domestic interest rates to stimulate the weak economy as well as let its currency depreciate to increase foreigners'

demand for Finnish products. Since Finland has joined the EMU, it no longer has these policy options available. Furthermore, since the rest of Euroland is not affected by the paper industry problem, the ECB probably will not use monetary policy to address asymmetric economic shocks that affect only a particular country or sub-region; it will use the policy for Euroland wide shocks.

Although Finland cannot use monetary policy to solve the asymmetric shock problem, if wage and price levels in Finland are flexible, then lower wage and price levels in Finland would have economic effects similar to those of a depreciation of the markka. In addition, if capital flows freely across Euroland and workers are willing to relocate to where jobs are available, then much of the asymmetric shock can be absorbed without monetary adjustments. If there is not free movement of labor and capital and flexible prices, then the asymmetric shock can cause a severe recession. Unemployed workers in Helsinki may not wish to move to Rome or Vienna for job opportunities because of linguistic, cultural or other barriers. The stability pact of EMU also constrains the Finnish government to restrict its budget deficit to 3 percent of GDP or less, preventing Finland from using fiscal stimulus to create domestic employment. Furthermore, Finland would not expect to receive a large transfer payment from another Euroland country since fiscal integration is low. These considerations suggest that EMU will involve economic costs. An empirical study by von Hagen and Neumann (1994) identified Austria, Belgium, France, Luxembourg, the Netherlands, and Germany as nations that satisfy the conditions for an optimum currency area. It indicated that Denmark, United Kingdom, and Italy did not. Denmark and UK opted out of EMU. Denmark affirmed its decision not to adopt the Euro in a referendum on September 28, 2000.

Does the United States of America approximate an optimum currency area? It would be sub-optimal for each of the 50 states to issue its own currency; however, prior to the adoption of the U.S. constitution the 13 original states did issue their own currencies, and argued against a common currency 225 years ago. Furthermore, asymmetric shocks can occur within a country. In the U.S.A. when oil prices jumped in the 1970s, oil-consuming regions such as New England suffered a severe recession while Texas, an oil-producing state, experienced a boom. In 1991, the United States suffered a recession in which it experienced regional differences in the severity and length of the downturn. The recession came as federal military expenditures were reduced, and regions such as southern California, which had a heavy concentration of defense contractors and military bases, were particularly hard hit. Consequently, unemployment in California was higher than in the rest of the country; by 1993, U.S. unemployment was only 6.5 percent while in California unemployment stood at 8.6 percent. The federal tax and transfer system aided unemployed Californians through unemployment benefits. The federal government also aided the region by subsidizing conversion of military bases to commercial use, the revenues for which came from more prosperous regions of the country. Labor-market flexibility also contributed to eventual recovery as workers migrated from California to neighboring states. Hence, the U.S.A., with a 225-year history, acts more like an OCA than Europe does, at present.

Countries have managed their economies with a common national policy. Although asymmetric shocks may be more serious internationally, they are not an impediment to monetary union. Since the advent of the EMS (European Monetary System) in 1979, the

EMU countries have restricted their monetary policies to maintain exchange-rate stability (the "snake inside the tunnel") in Europe.

Since intra-Euroland trade accounts for 60 percent of foreign trade, benefits from EMU are likely to exceed the associated costs.

As a practical matter, the costs associated with giving up the possibility of independent monetary policy may be small for most European countries. As part of their effort to stimulate trade and investment, potential EMU members eliminated all barriers to international capital flows, which created a competitive multi-country financial market. Consequently, there was little or no difference in the cost of borrowing in the different countries so long as exchange rates between European currencies were kept fairly stable. Because this European interest rate was determined by the large European countries (primarily Germany), small countries in the European Union did not have the ability to lower interest rates during recessions unless they were willing to see their currencies devalued. European financial and exchange rate treaties left small member countries effectively without the ability to conduct independent monetary policy. But all member countries have representation in monetary policy decisions under the monetary union. The EMU gives small countries some influence in determining the European interest rate even as it formally eliminates the possibility of using independent monetary policy and exchange-rate adjustments.

The EMU member countries also agreed to limit the use of fiscal policies. Consequently, when one or several countries within the currency union, but not all, face(s) recession or an

overheated economy, adjustment must occur largely through changes in wages and prices or through the movement of workers from one country to another.

C. Monetary Policy.

The biggest change in moving to a single currency is that each country relinquishes control over monetary policy to the new European central bank that issues the single currency for all the countries in the union. But what happens if a recession hits just one country, as in the hypothetical description of Finland and a recession in the paper/pulp industry? Prior to EMU, its central bank could have responded to the recession by increasing the money supply, thereby pushing interest rates downward and stimulating investment and economic recovery. The central bank for the European Monetary Union will be unlikely to use expansionary monetary policy to help one country, since doing so would cause inflation in those EMU countries not in recession.

Of course, if economic adjustment from recessions happens quickly, there is little cost associated with giving up interest- or exchange rate policy and no need for federal redistribution. The speed of recovery depends greatly on the flexibility of the European labor market. If workers are highly mobile, Finnish workers who are unemployed or earning low wages during the recession will quickly relocate to Austria or other countries with a high demand for labor. This type of flexibility has an equalizing effect across the monetary union and makes for greater symmetry in policy objectives. In Europe, however, cultural and linguistic differences hinder labor movements across countries; consequently, so this particular type of labor-market flexibility is not promising in the near future. A second form of labor market flexibility occurs through wage adjustments. If, in a recession,

workers are willing to accept lower wages, employers will not only be able to maintain the same number of employees but also to pass on the reduction in payroll costs to lower output prices. Lower prices, in turn, spur exports and lead domestic consumers to buy fewer imports and more locally made goods. That increase in demand spurs economic recovery. In practice, however, although wages seem to go up during booms, they do not fall so readily during recessions.

D. Reducing the Costs and Preserving the Benefits

The keys to a currency union's ability to adjust to economic shocks are the degree to which wages and prices are flexible and the ease with which labor moves across borders.

Although labor-market flexibility can substitute for a policy response, labor-market flexibility in Europe is clearly much lower than that in the United States. Compared with their U.S. counterparts, European workers are much more willing to remain unemployed rather than accept lower wages. They are also much less willing to move out of regions with high unemployment rates. This situation is only partly due to the language and cultural barriers that hinder cross-country movements; European workers are also less likely to move within their own countries in response to labor-market pressures. This reluctance may reflect the relatively high unemployment compensation in Europe.

European governments recognize the need for greater labor-market flexibility, but attempts at labor-market reform are controversial. There has been some progress. For instance, workers are now free to move across national borders, and this movement can reduce the cost of regional shocks. But it seems unlikely that European labor markets will be able to

meet the demands for flexibility in the short run. Consequently this important shortcoming could limit the Euro's early success.

The costs associated with losing independent monetary and exchange-rate policy might be small if there were either little evidence of regional asymmetry or great evidence of labor market flexibility. In the European case, the opposite is true; Bayoumi and Eichengreen (1993) find not only that shocks are more symmetric across regions in the United States than in Europe, but also that labor markets in the U.S. regions stabilize much more quickly than labor markets in European countries. These findings seem to suggest that Europe will not form as successful a monetary union as that in the United States, since regional losses may be greater in Europe than the U.S. experience would suggest, but that conclusion might be premature.

Comparing the ability of U.S. and European labor markets to adjust to economic shocks, ala Bayoumi and Eichengreen, may not be appropriate because they were comparing asymmetries within an existing monetary union to those in a potential one. Since inauguration of the EMU, sources of asymmetry have been reduced. For example, the EMU has eliminated asymmetries in setting monetary policy. Furthermore, countries with fiscal deficits out of line with the European norm will be fined. In contrast, the U.S. federal income tax and welfare systems redistribute income from expanding to contracting regions; this leveling effect may make U.S. regions appear more symmetric in their cyclical movements than their European counterparts. As similar tax and welfare policies take hold within the European Union, redistributive policies may create more symmetry across regions there as well.

Although a single currency should lessen fiscal and monetary sources of asymmetry, there are, at the same time, reasons to suspect that adoption of a single currency may increase asymmetry within the EMU. By reducing transaction costs, adopting a single currency may increase trade. Trade tends to encourage regional specialization in the production of goods. If regions specialize in the types of goods they produce, shocks to demand or to the production of any particular good will affect regions differently. If monetary union does increase trade, regions within the common-currency area may become less alike than they are now. It may be argued (as Mundell did in 1973) that asymmetric responses to economic shocks may help smooth aggregate business cycles in optimum currency areas.

E. How Do Countries in Europe Compare with Each Other?

At one time economists referred to Europe as consisting of a "core" and a "periphery," with the core represented by the U.K., France, Germany, and perhaps Austria, and the periphery by the Mediterranean countries. Relatively large budget deficits and high inflation rates distinguished "peripheral" countries, as did the fact that their business cycles were rarely in sync with those in "core" countries. This breakdown is no longer as clear as it once was. Budget deficits in Germany and France have grown over the past nine years, while those in the once-peripheral countries have fallen, as have their interest and inflation rates. German re-unification represented a large asymmetric shock, relative to the rest of Europe, from which Germany is still recovering. Nonetheless, Europe as a whole has undergone a period of dramatic convergence in interest and inflation rates and government budget deficits since the ratification of the Maastricht Treaty on monetary union in 1993.

IV. A Brief History of the Euro and EMU

The introduction on January 1, 1999, of the Euro-- the single currency adopted by eleven of the fifteen countries of the European Union--marked the beginning of the final stage of Economic and Monetary Union (EMU). This lengthy process began in March 1957, when six European nations--Belgium, France, Germany, Italy, Luxembourg, and the Netherlands--signed the Treaty of Rome, founding the European Economic Community (EEC).⁵ The Treaty came into effect on January 1, 1958, exactly 41 years before the Euro.⁶

In 1971, a group of European experts developed a proposal for coordinated monetary policy among EEC members -- the Werner plan. In 1979 of a system of stable, but adjustable, exchange rates known as the European Monetary System (EMS), was established. The Single European Act, signed in 1986, set the objectives of establishing a European single market and a monetary union. In 1989, Delors Committee report detailed the specific stages toward achieving Economic and Monetary Union (EMU), and in December 1991 in the Dutch city of Maastricht, European Union (EU) nations produced the Treaty on European Union.

The Maastricht Treaty also provided the legal basis for the European Central Bank (ECB) and protocols for the European System of Central Banks (ESCB) and the European Monetary Institute (EMI), the precursor to EMU. The ESCB comprises the European Central Bank and the fifteen EU-member national central banks. During its transitory existence between January 1994 and July 1998, the EMI worked to strengthen cooperation and monetary policy coordination among national central banks and to facilitate preparations for the establishment of the ESCB. The ECB came into formal existence on

June 1, 1998 and took over formal responsibility for the monetary policy of the EMU on January 1, 1999. The euro has replaced the national currencies of the Euroland and in 2002 the notes and coins that circulated in these countries ceased to be legal tender. During the transition period from January 1, 1999 - December 31, 2001 one could use the euro for non-cash transactions, but euro notes and coins did not circulate. Anecdotal evidence that the Euro is a success is that criminals tried to use counterfeit Euros for cash purchases during the first week of circulation.

Overall, legislation governing the euro and transactions made with euros provides a framework to ensure acceptability of the new currency. The transition period proceeded without major difficulties, a situation that reflects the extensive planning that took place well before the EMU member countries entered into the union.

V. Convergence Criteria for Membership in EMU

ECOFIN Council made recommendations to European Council (heads of EU governments) for membership decisions. ECOFIN Council set bilateral exchange rates. Euro (ECU) exchange rates were locked in January 1999. (See Table 1). Denmark and United Kingdom opted out at present. Greece and Sweden were ruled ineligible in 1999, but Greece met eligibility criteria and joined the EMU in 2001.

The ratio of government debt to GDP must be less than 60, unless the ratio is sufficiently diminishing and approaching this value at a satisfactory pace. A government budgetary position should not have an "excessive deficit" (exceeding 3%) unless the excess over 3% is temporary or the ratio has declined substantially and reached a level close to 3%. For

one year prior to examination, the inflation rate of the country cannot exceed by more than 1.5% the inflation rate of the three best-performing states in terms of price stability.

For one year before examination, a member state must have an average nominal long-term interest rate (long-term government bond or comparable securities) that does not exceed by more than 2% that of the three best-performing member states in terms of price stability.

These convergence criteria may be found in table 2.

VI. European System of Central Banks

As specified in the Maastricht Treaty, the primary objective of the ECB is to "maintain price stability." Without jeopardizing this objective, the ECB is also expected to support the general economic policies of the European Commission. In this respect, the mandate of the ECB is similar to that of the Bundesbank, which was charged with "safeguarding the currency". In practice, safeguarding the currency was interpreted to mean price stability. In comparison, the Federal Reserve Act states that US. monetary policy should seek "to promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates."

The ECB's published definition of price stability is inflation, measured as the twelve-month change in the harmonized index of consumer prices (HICP) for the euro area, of below 2 percent-with no explicitly defined lower bound. Although the ultimate goal of Euroland monetary policy is clearly specified as price stability, the Governing Council of the ECB has also adopted a target for money growth. The reference value for M3 is derived from three assumptions: price stability as defined above: the trend rate of growth of real GDP is 2 - 2.5%; the trend rate of decline in M3 velocity is 0.5 - 1.0% per annum.

The relevant reference value for the central bank's monetary growth target for 1999 was M3 growth of 4 1/2 percent, as measured by a three-month moving average of the twelve-month percent change. The ECB also monitors other indicators. In January 1999, the ECB noted that, among other things, the mix of other indicators would include wages, bond prices, the yield curve, measures of real activity, business and consumer surveys, and the exchange rate.

While monetary policy decisions are centered in Frankfurt, the operational aspects of monetary policy implementation (including open market operations, administration of the minimum reserve system, and management of the standing facilities) are undertaken in a decentralized fashion at the twelve national central banks. The main features of the Eurosystem's operating procedures are similar in many respects to those employed by the Bundesbank and other national central banks in the euro area in recent years: The ECB relies heavily on open market operations, especially term repurchase agreements, to control a short-term interest rate.

The Eurosystem also has two standing facilities to provide and absorb overnight money and to provide a "corridor" for the market-determined interbank rate: the marginal lending facility and the deposit facility. The marginal lending facility provides overnight credit to all eligible credit institutions with sufficient collateral, and its interest rate usually serves as a ceiling for the overnight interbank rate. There is no stigma associated with borrowing at the marginal lending facility. However, such borrowing takes place at a penalty rate, between 100 and 150 basis points above the official weekly refinancing rate. The overnight interbank rate usually trades close to the weekly refinancing rate, giving banks an incentive

to borrow in the interbank market if possible. Intra-day credit that is not repaid by the end of the day automatically rolls over to overnight lending through the marginal lending facility.

The second standing facility, the deposit facility, usually provides a floor for the interbank rate. This facility is available for banks to deposit excess funds that earn interest, although excess funds are not automatically swept into it. Normally, the interest rate on the deposit facility is 100 basis points below the refinancing rate. Thus, in normal times, the corridor provided by the marginal lending and deposit facilities is quite wide, at 2 percent to 2.5 percent. A chronology of monetary policy measures of the ECB is detailed in table 8.

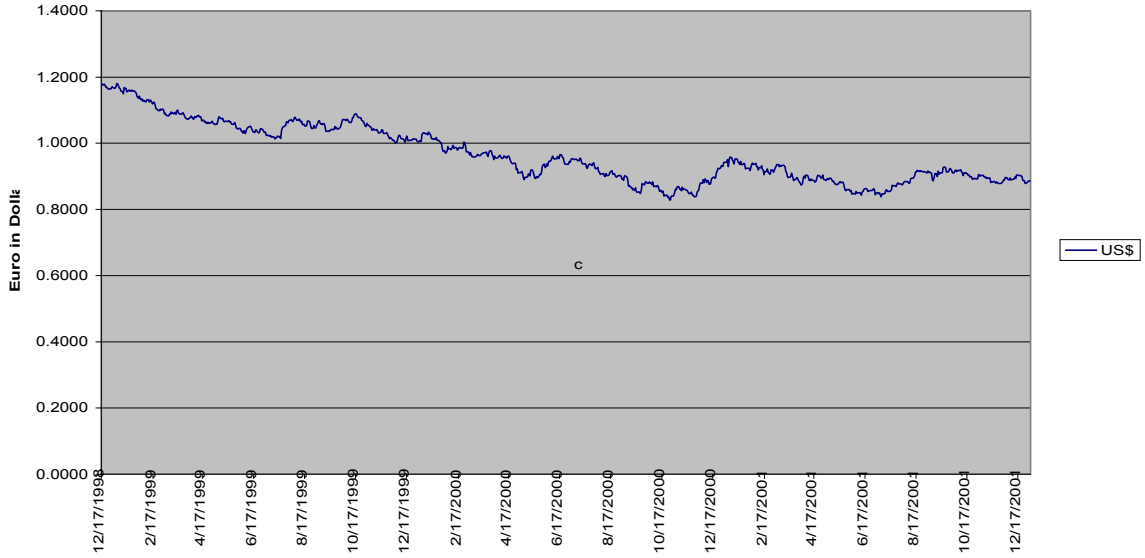
The ESCB is probably the most independent central bank in the world. The fact that the charter of the ESCB can only be changed with the unanimous consent of its signatories makes it difficult to exert political pressure on the ESCB. Independent central banks tend to deliver lower inflation rates without costing higher unemployment or slower growth in real output. As can be seen in table 6, the rate of inflation as measured by the HICP has been below 2.5 percent and declined in August. Higher oil prices and the lower euro have increased the inflation rate. Core inflation has remained constant.⁷

VII. Exchange Rate Movement January 1, 1999 - December 31, 2001

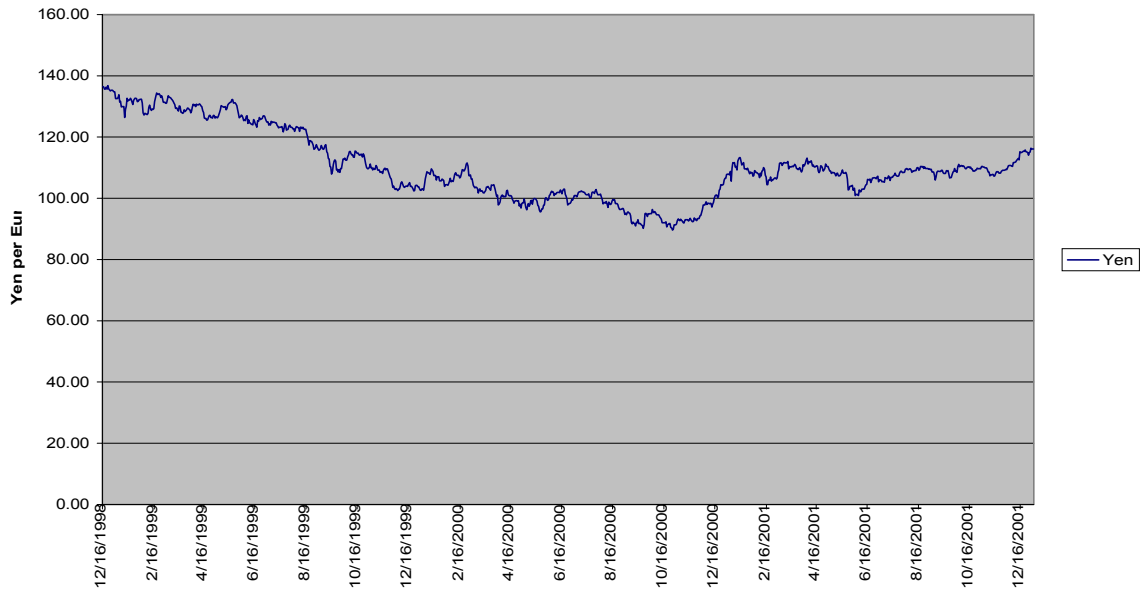
The critics have argued that the Euro has failed because it has depreciated against the dollar and the yen. Prior to its introduction many predicted that the Euro would rapidly appreciate against the dollar, given the relative current account positions of the United

States and the Euro area . On January 4, 1999 the Euro traded at \$1.18 and 133.82 Yen, versus \$.89 and ¥116.17 as of December 31, 2001. (See graphs 1 and 2.)

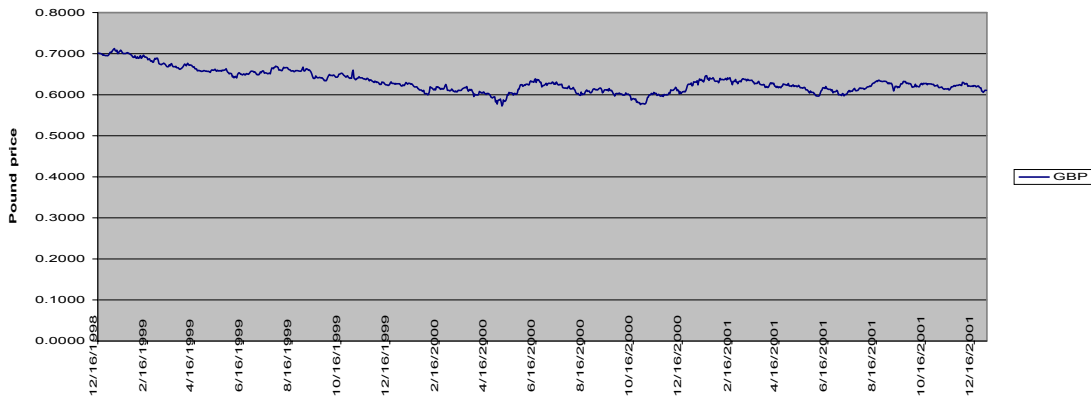
Graph 1: Dollar Value of Euro Dec 98-Dec 01



Graph 2: Yen Value of Euro Dec 98-Dec 01



Graph 3: Value of Euro in British Pounds

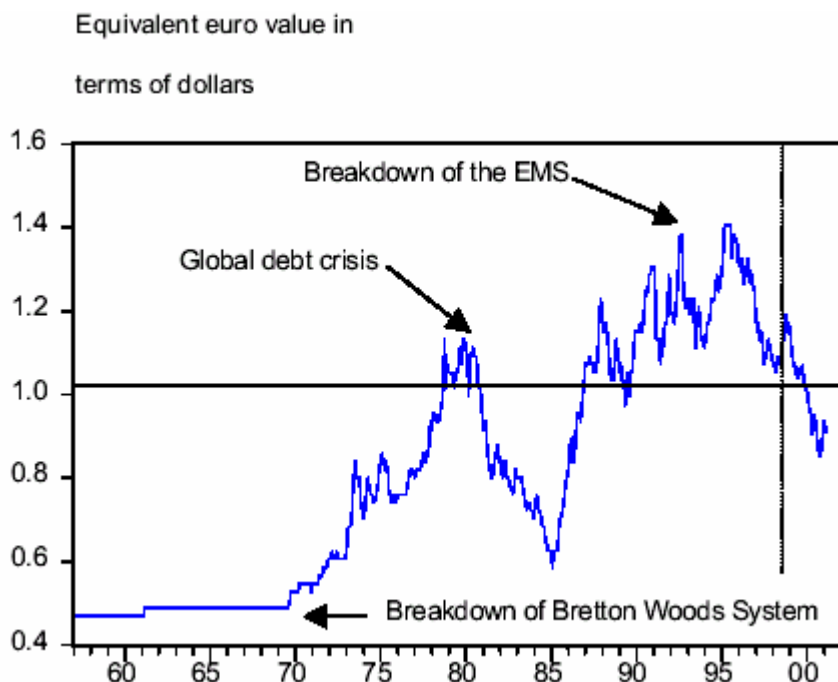


However, one could argue that the legal currencies that comprised the Euro were over-valued in late 1998. The currencies of the Euro experienced a strong appreciation against the dollar in late 1998. This appreciation resulted partially as a response to: Russia's default, the failure of the hedge fund Long Term Capital Management in the United States and the "euphoria" between the announcement of the Brussels summit in May 1998 (announcement of the participation in EU) and the actual beginning of the Euro. In fact, if we look at the U.S. dollar price of the ECU (precursor to the Euro) from 1995 to present, we see that it has trended downward, except for the spike in late 1998. (Graph 4).

Graph 4: ECU in US \$ 1995-2001



The dollar value of the deutsche mark (another precursor of the Euro) has shown similar volatility in its history. The current period of decline, which started in Spring, 1996 is not a unique development. There was a similar period after the world debt crisis of 1981, bringing the dollar to 3.45 DM, which would be equivalent to a drop in the Euro to \$0.56; the lowest value to which the Euro has fallen \$0.84 in June, 2001. (Graph 5)



Another reason that the dollar appreciated vis-à-vis the Euro in 1999 was that the US economy continued to grow at a robust pace, while the Euro area experienced a growth recession. GDP increased only 2.1% in Euroland in 1999 (table 4) and 3.5% in 2000, while the US grew at a 5.1% pace in 1999. Unemployment remained high in Euroland, declining from 10.6 % in December 1998 to 9.6% in December 1999 (table 3). Furthermore, uncertainty about the direction of economic policy in Germany, the Euroland's largest economy, and confusion about ECB's attitude toward exchange rate developments detracted from market confidence in the first months of the euro. There is evidence that the slowdown in Europe has ended. Germany and Italy show signs of an upturn in

economic activity. (The recession in Russia and Asia led to Germany's exports falling by 3.4 percent in late 1998 while Finland, Ireland, Spain and Portugal continue to grow rapidly.) After reaching a low of \$.89 in early May, 2000, the Euro had appreciated as the European Central Bank (ECB) raised interest rates and the Federal Reserve did not increase its target for the federal funds rate. ECB raised the refinancing rate again in August.⁸

As the euro depreciated to \$.8438 and ¥90.04 in mid-September, the G-7 central banks to intervene on September 22, 2000 to support the euro when it traded around \$.8630. Analysts estimate that the central banks spent \$2.5 - \$5.0 billion to bolster the euro.

What has prompted that decline in the euro vis-a-vis the dollar was the demand for dollars by corporations. Approximately \$58 billion flowed from the euro-zone in August, 2000, due to merger-and-acquisition activity. Euroland acquisitions of non-euro-area companies are running at an annual rate of 7% of the region's gross domestic product, up from 0.5% a few years ago.

The Euroland companies largely finance those acquisitions by borrowing euros and converting the euros to dollars to pay the sellers; hence, they have euro liabilities but dollar-denominated assets. The Europeans will convert dollar cash flows from their newly acquired American companies to euros to repay their euro debts, and that could prove to be another bullish factor for the euro. "If Euroland acquisitions fall from their 7% of GDP level -- even if they remain large -- the euro will rise," says Ray Dalio of Bridgewater. "And repaying their euro loans is bearish for the dollar and bullish for the euro."⁹

Another pressure on the euro is European purchases of foreign stocks, up fivefold since 1996. Portfolio investments showed net outflows of 5.1 billion euros in May 2000, mainly from Euroland residents investing in US equities due to the strong US economy and strong US stock market. The gap between U.S. and European returns has widened from 2.1% in 1998 to 2.6% in the first quarter of 2001. Of the \$155 billion net foreign purchases of U.S. securities in the 1st quarter of 2001, \$100 billion originated with European residents; mostly from the euro zone. That is a substantial flow of capital out of euro and into the US dollar. It is no wonder the euro had been weak. The increased European investment in US securities was largely a product of the creation of the euro and of legal changes that freed pension funds and insurers to invest in stocks and also invest outside their home market. That makes it a one-time reallocation of assets. Since investors' portfolios have reached their allotted dollar allocations, the buying will cease, which should alleviate this pressure on the euro.

Billions of Euros have been borrowed, converted into US dollars and subsequently placed in dollar denominated investments. For several years there has been a net acquisition of American companies and assets by European firms and investors. Much of this was financed with euro denominated debt.

There were good reasons to borrow euro and buy dollars. Interest rates in Euroland were lower than those in the United States. A European investor could borrow euros as banks and other institutions were eager to lend euros. The euro loan proceeds were then easily converted into US dollars and easily used to buy American assets including marketable securities.

For two years this was a terrific trade. Since the interest rate in the US was higher than on the euro loan, there was a positive carry. In addition, as the euro weakened against the US dollar, there was a currency based capital gain. This trade is not as appealing since the NASDAQ bubble burst and since U.S. interest rates have changed. Positive carry is no longer available. U.S. stocks are no longer a one directional investment; European investors saw their US stocks fall in value just as Americans did.

Today, the condition of the global financial market reflects the cumulative Euro denominated debt in place and massive US investment by Europeans. When the currency reversal comes, this cumulative position has enormous investment ramifications. It amounts to a large Euro short position; that is the precise recipe for a massive Euro rally and a short squeeze.

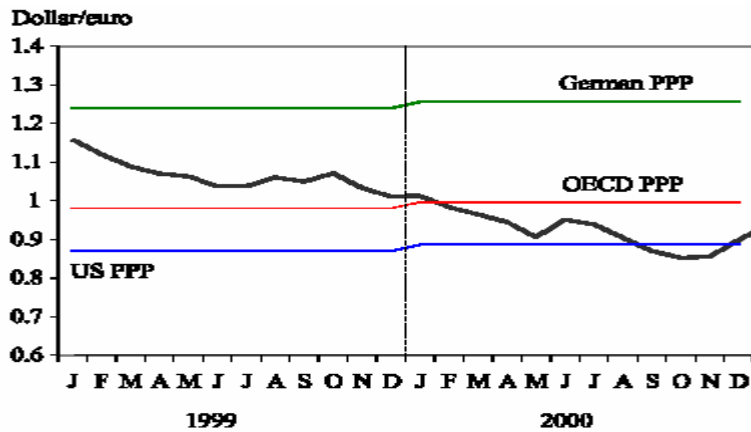
Enormous amounts of cash hoards have been leaving the D-mark, lira, franc, etc. for the US dollar. This transfer of both legal and "Black" money must not be underestimated.

One rationale as to why the dollar is presently strong because monies flow to it for a temporary resting place and why they will flow into the euro as euro denominated bills become globally available, is that individuals turned their cash hoards of the old currencies into dollars. Residents of non-EMU countries, particularly those of "Eastern Europe" had been holding deutsche marks. Many "ordinary people" had heard that the deutsche mark would be abolished in 2002, and were afraid of sustaining a loss by continuing to hoard deutsche marks and began to hold dollars which were free of this kind of uncertainty. This argument was put forth by Sinn and Westerman.¹⁰ EMU residents who had been hoarding cash for black or gray market transactions similarly may have changed their local currencies for dollars with the plan to switch to Euros in 2002.¹¹

The cash exchange may trigger the euro rally but the economics of cost vs. gain will sustain it. ECB President, Wim Duisenberg has affirmed estimates that the changeover to euro from the existing twelve currencies has a one-time cost of between "0.3 and 0.8 percent of GDP."

In 2002 the savings from a common currency will be fully seen. Estimates vary but seem to suggest a common currency will add at least 0.5% to EU countries' GDP growth rate. This is a recurring and productivity based addition, not a one-time event. The growth occurs because of the removal of financial friction in transactions; no more currency hedging cost among intra-EMU trading partners. Fees for bank transfers between countries (as high as 31 percent for Germans receiving bank transfers from Portugal) are eliminated. Another effect is transparency in prices. Anyone will be able to compare a price denominated in euro in any of the twelve EMU countries. Existing open borders among countries mean transactions across borders are facilitated by the single currency.

Martin Feldstein, who has not been an advocate of the Euro, indicated that "there is no reason to be unhappy that it fell in value, especially since that has helped to strengthen aggregate demand by increasing Europe's net exports and has done so without any obvious increase in overall inflation."¹² The Purchasing Power Parity value of the Euro is above parity against the US Dollar and above 0.7 against British Pound.



Sources: OECD, Main Economic Indicators, IMF International Financial Statistics

Will the Euro be a strong currency? Yes. The ECB has focused on fulfilling its primary mandate, achieving price stability. The Euroland current account registered a small (€1.3 billion) deficit in 2001. Once the Euro establishes its credibility as a major global currency, the world's central banks, pension funds and institutional investors will allocate a large portion of their portfolio and reserve holdings to Euro assets.

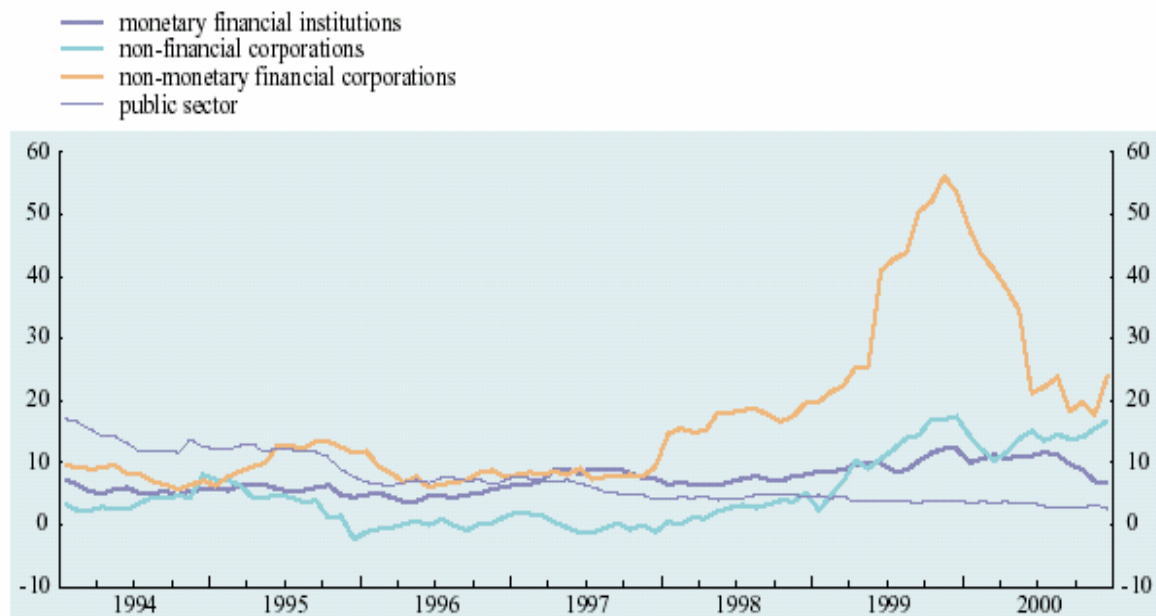
Will the Euro become a global currency rivaling the U.S. dollar, which has been the dominant global currency since the end of World War I, when it replaced the British pound? That dominance was possible due to the size of the U.S. economy and the relatively sound monetary policy of the Federal Reserve. Since Euroland is comparable in population, GDP and international trade share to the U.S. and since ECB is pursuing a sound monetary policy, the Euro is likely to emerge as the second global currency in the near future, ending the dollar's sole dominance.

VIII. Successes for the Euro

One major achievement is the expansion of the European commercial bond market. The volume of international bonds denominated in euros exceeded dollar-denominated issuance in 1999. The ability to borrow and lend in euros, obviating the need to hedge exchange rate fluctuations, has facilitated substantial cross-border lending. It also makes it easier to finance cross-border mergers and acquisitions. Cross-border bank acquisitions have become more common in the past four years.

Amounts outstanding of euro-denominated debt securities issued by euro area residents

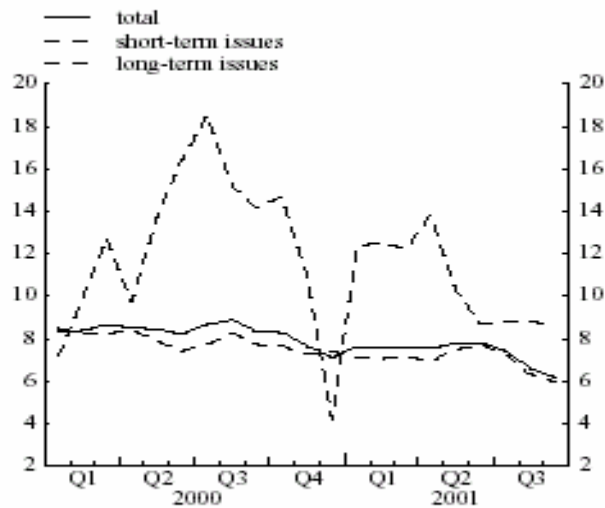
(annual percentage changes)



Source: ECB.

Amounts outstanding of debt securities issued by euro area residents

(annual percentage changes)

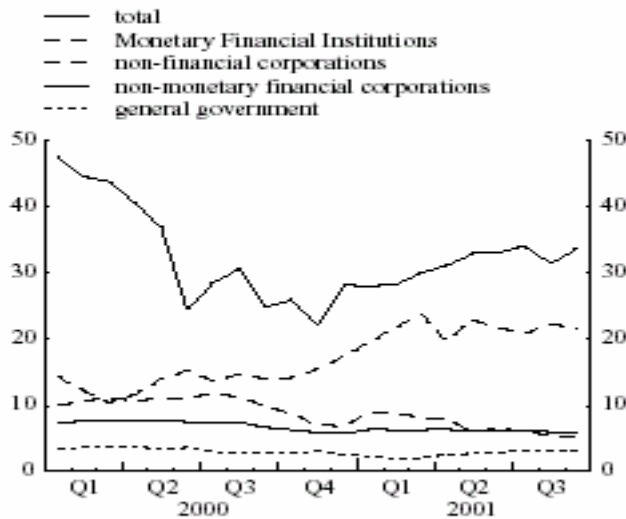


Source: ECB.

Note: From January 2001, euro area data include Greece. For reasons of comparability, annual growth rates before January 2001 use data for the euro area plus Greece.

Amounts outstanding of euro-denominated debt securities issued by euro area residents

(annual percentage changes)



Source: ECB.

Note: From January 2001, euro area data include Greece. For reasons of comparability, annual growth rates before January 2001 use data for the euro area plus Greece.

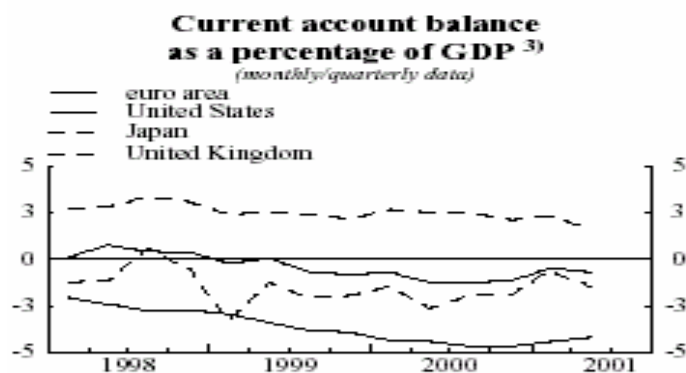
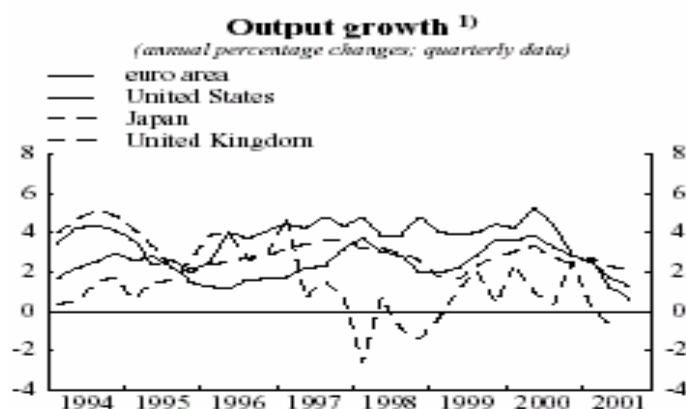
The ECB also succeeded in 1999 in fostering strengthening demand that is producing a faster growth of output in 2000. EMU also succeeded in reducing fiscal deficits. The

Maastricht treaty required lower deficits and national debt as a condition for a country's admission to the EMU. Some countries achieved this goal by accounting manipulation and intra-year movements of spending and tax receipts or by treating asset sales as if they were a real source of revenue for the government, but all countries did substantially reduce their fiscal deficits. Much of the reduction occurred because interest rates paid on the national debt fell as inflationary expectations improved. No matter the reason, EMU has fostered lower deficits.

Euroland governments have undertaken initiatives to attract business by reducing taxes in the region by 60 billion euros, about 0.7 percent of GDP, which could result in another 0.5 percent increase in GDP annually.¹³ At 46 percent of GDP in 1999, the tax receipts ratio is still large compared to the 31 percent of GDP in the U.S.

While there were some differences in economic performance across Euroland over the past year, we did not see the kind of dramatic asymmetries the skeptics believe would cause EMU to collapse. Despite sluggish growth in two of the larger economies (Germany and Italy), unemployment continued to decline across the Euroland and is at an eight-year low, although it does remain at unacceptably high levels. Manufacturing activity is at a record high. Germany, which accounts for about one-third of Euroland economic activity, only experienced one quarter of negative growth (at the end of 1998) rather than a full-blown recession. How well the institutions of EMU will deal with more severely asymmetric cycles if and when they occur is an open question.

Main developments in major industrialised economies



Sources: National data, BIS, Eurostat and ECB calculations.

- 1) Eurostat data are used for the euro area and the United Kingdom; for the United States and Japan national data are used.
- 2) Data for the euro area up to 1995 are estimates for the HICP based on national CPI data; after 1995 HICP data are used. The RPIX index is used for the United Kingdom.
- 3) ECB and Eurostat data are used for the euro area and the United Kingdom; for the United States and Japan national data are used. For the euro area, the United States and Japan, figures refer to seasonally adjusted data for both GDP and the current account, for the United Kingdom GDP data are seasonally adjusted, while the current account balance data are not seasonally adjusted.

There are also signs of structural reform. The Spanish government is considering extending a plan to all employees that reduces the high cost of firing employees, resulting in greater efficiency and mobility in the workforce. Unemployment is down eight percent since the plan was enacted in 1997 (although it is the highest in the zone at 14%). The plan reduces the maximum severance pay for employees from 24 months to 12, in exchange for subsidies to company social security contributions. Structural changes like this will contribute to a more stable euro.

Another measure of the success of the Euro is that other countries wish to join the EU and adopt the Euro. Several candidate countries expect to convert their own currencies to the euro two years after becoming EU members. At their summit in Laeken in December 2001, the 15 EU leaders said that Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia could join the Union in 2004. Bulgaria and Romania are excluded from the calculation because they are not expected to be ready before 2008, while Turkey is expected to join the EU even later due to the vast amount of reforms that still need to be implemented.

IX. Conclusions

Monetary union has not eliminated the unemployment problems of Europe, which are due to excessively high tax rates, over-regulation of the labor market, and the social safety net. However, there will be direct effects arising from the increase in transparency of pricing in the labor market, which will lead to increased awareness of Europe-wide labor market conditions, increased labor mobility and create pressures for convergence in pensions, unemployment benefits and taxes on labor.

There are both costs and benefits associated with forming any monetary union. The benefits of monetary union stem from reducing transaction costs and eliminating exchange-rate uncertainty. Falling transaction costs mean fewer barriers to trade, which should increase competition and reduce prices. Eliminating exchange-rate uncertainty will spur still more trade; it may also lower interest rates, therefore making it cheaper to borrow to finance new investment. In the European case, the benefits may be greater still because when each country had its own currency, speculative pressures heightened the risk of costly exchange-rate movements.

Whatever the costs of EMU, mechanisms other than domestic monetary or exchange rate policy will have to bear the burden of economic adjustment after adoption of the single currency. Legal barriers to movements of labor have been removed, which should encourage that adjustment process. Further labor-market reforms may be necessary to increase labor markets' speed of adjustment. In addition, member countries may find it necessary to institute international tax and redistribution policies to allow for regional differences in policy stimulus or restraint.

Robert Mundell indicated, in "The Case for the Euro" (1998), "A good exchange rate is an old exchange rate. After countries have been in a currency area for a long time, wages, prices and interest rates become harmonized to a common level." ¹⁴

The changeover to a new currency is not a simple process. Each of the 375 million people in the European Union must learn a new way of comparing and thinking about prices. The residents must also relinquish their emotional attachment to their national currencies, an emotional trauma akin to the loss of national heritage.

These costs are real, but the European residents gain a currency that spans a continent. The benefits will derive from transparency of pricing, stability of expectations and lower transactions costs, as well as a common monetary policy.

As Mundell advocated in 1998, "Monetary union will do much to integrate Europe's commodity, factor and capital markets. It will increase Europe-wide competition and revolutionize financial markets. It will spur rationalization, mergers and takeovers in the European banking industry and commercial firms. Perhaps most important of all, EMU will change the way Europeans think about themselves and about a multi-regional continental market that has become the largest in the world." ¹⁵

Footnotes

¹R.A. Mundell, "A Theory of Optimum Currency Areas," *American Economic Review*, 51, 657-665 (September 1961).

²R.A. Mundell, "The Case for the Euro, Part I," *The Wall Street Journal*, March 24, 1998, p. A22

³J.A. Frankel and A.K. Rose, "Economic Structure and the Decision to Adopt a Common Currency," *Institute for International Economic Studies, Stockholm University, Seminar Papers*, No. 611, November 5, 1997

⁴European Commission, "One Market, One Money: An Evaluation of the Potential Benefits and Costs of Forming an Economic and Monetary Union," *European Economy* 44, 1990.

⁵ The Treaty of Rome was preceded in 1951 by the Treaty of Paris to which the same six European nations were signatories; the Treaty of Paris established the European Coal and Steel Community, which aimed at the more-limited objective of pooling the coal and steel resources of member countries.

⁶ Over the years, membership in the EEC, which was renamed the European Union, grew from the initial six countries to fifteen, with Denmark, Ireland, and the United Kingdom

becoming full members in 1973, Greece in 1981, Spain and Portugal in 1986, and Austria, Finland, and Sweden in 1995.

⁷ According to Eurostat, the European Commission's statistical agency, August inflation rates were highest in Ireland, at 5.7%, and Spain and Portugal, both at 3.6%. They were lowest in Germany, at 1.8%, and Austria, at 1.9%. The inflation rate increased in two countries, decreased in six, and stayed the same in three.

⁸The ECB made its first rate moves, lowering the repo rate from 3.0% to 2.5% in April 1999, and then raising it back to 3.0% in November. On August 31, 2000 the ECB raised the refinancing rate 25 basis points to 4.50%, effective September 6. A chronology of monetary policy measures of the ECB is detailed in table 8.

⁹M.R. Sesit, "Time for a Wild and Crazy Idea? Some Make Bet on Ailing Euro," *Wall Street Journal*, September 22, 2000, pp. C1, C6.

¹⁰H-W. Sinn and F. Westermann, "Why Has the Euro Been Falling? An Investigation into the Determinants of the Exchange Rate," *National Bureau of Economic Research Working Paper* 8352, July 2001, p. 29

¹¹D.R.Kotok, "Italy-4 The Mafia," June 27,2001, <http://www.cumber.com/comments/062701.htm>. "The conversion of lira and other currencies is causing a problem for organized crime. Vast amounts of currency will be invalid by the middle of next year. The conversion to euro has specific timeframes. That means organized crime has to find a way to either launder money quickly or convert it. The euro will not be available in paper form until January 1, 2002 and then there will only be a few months of conversion time before the old currencies are completely withdrawn. Organized crime has a difficult task because large currency transactions would call attention to the criminal. Several economists speculate that the way they are choosing to get around this problem is to convert those currencies to the US dollar. Intuitively that makes a lot of sense. Could it explain the continuing strength in the dollar at a time when the dollar seems overvalued against the euro?"

"We should know the answer to this question within a year when the euro has completed its transition from a virtual to a real currency. We think the answer is "yes" and that means the euro should start to strengthen as this one-time transition is completed. An additional technical aspect of the currency conversion involves the denomination of bills. The European Central Bank intends to issue a 500 euro denominated note. The largest size mass circulated US dollar denomination is the \$100 bill. Some experts speculate that organized crime will favor the larger 500 euro bill over the \$100 because it will allow them to make cash payments in smaller containers. If this speculation proves accurate, a potential worldwide shift of billions of dollars into euros is possible with the transfers starting early next year. Presently those \$100s which are printed by our Federal Reserve amount to an interest free loan to the US Government from the worldwide holders of that paper. Substitution of the euro would mean the interest free loan will be to the European Central Bank and that our Fed will have to offset this shift out of our currency."

¹² M. Feldstein, "The European Central Bank and the Euro: The First Year," *National Bureau of Economic Research Working Paper 7517*, February 2000, p. 2

¹³ "Following Germany's landmark tax reform passed last month, France is set to respond Thursday by unveiling its own ambitious plan. The bill, which would amount to the country's deepest cuts since World War II, is expected to lop off 120 billion francs (\$16.48 billion or 18.29 billion euros) from the annual tax burden during the next three years beginning in 2001. Italy has promised to move ahead with a plan that would match the German reform. And Belgium's finance minister earlier this week proposed reducing income taxes across the board. . . Tax receipts as percentage of GDP, 1999: France 50.4, Finland 49.4, Austria 48.7, Belgium 47.2, Italy 46.4 Euro zone 45.6, Germany 44.6, Netherlands 43.7, Portugal 42.8 U.K. 40.4, Spain 37.5, Ireland 33.2, Japan 31.1, U.S. 31.1" C.R. Rhoads and D. Woodruff, "European Countries Make Moves to Reduce a Heavy Tax Burden," *The Wall Street Journal Interactive Edition*, August 31, 2000.

¹⁴R.A. Mundell, "The Case for the Euro, Part I," *The Wall Street Journal*, March 24, 1998, p. A22

¹⁵R.A. Mundell, "The Case for the Euro, Part I," *The Wall Street Journal*, March 24, 1998, p. A22

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Table 1. Official Currency Conversion rates

Country	Currency	Currency Units per Euro
Austria	Schilling	13.7603
Belgium	Franc	40.3399
Finland	Markka	5.94573
France	Franc	6.55957
Germany	Mark	1.95583
Greece	Drachma	340.750
Ireland	Punt	0.787564
Italy	Lira	1936.27
Luxembourg	Franc	40.3399
Netherlands	Guilder	2.20371
Portugal	Escudo	200.482
Spain	Peseta	166.386

Source: European Central Bank

Table 2 Economic indicators and the Maastricht Treaty convergence criteria

		HICP inflation ^(a)		Long-term interest rate ^(b)		General government surplus (+) or deficit (-) ^(c)			General government gross debt ^(c)			Exchange rates
REFERENCE VALUE		2.7 (1997)		7.8 (1997)		3.0 (1997)			60.0 (1997)			ERM participation
Belgium	1996 1997 1998		1.8 1.4 -		6.5 5.7 -	##	-3.2 -2.1 -1.7		126.9 122.2 118.1		YES	
Denmark	1996 1997 1998		2.1 1.9 -		7.2 6.2 -	## #	-0.7 0.7 1.1		70.6 65.1 59.5		YES	
Germany	1996 1997 1998		1.2 1.4 -		6.2 5.6 -	##	-3.4 -2.7 -2.5		60.4 61.3 61.2		YES	
Greece	1996 1997 1998		7.9 5.2 -		14.4 9.8 -	#	-7.5 -4.0 -2.2		111.6 108.7 107.7		YES	
Spain	1996 1997 1998		3.6 1.8 -		8.7 6.3 -	##	-4.6 -2.6 -2.2		70.1 68.8 67.4		YES	
France	1996 1997 1998	**	2.1 1.2 -	*	6.3 5.5 -	##	-4.1 -3.0 -2.9	#	55.7 58.0 58.1		YES	
Ireland	1996 1997 1998	** *	2.2 1.2 -	* * *	7.3 6.2 -	## #	-0.4 0.9 1.1		72.7 66.3 59.5		YES	
Italy	1996 1997 1998		4.0 1.8 -		9.4 6.7 -	##	-6.7 -2.7 -2.5		124.0 121.6 118.1		YES	
Luxembourg	1996 1997 1998	** *	1.2 1.4 -	* * *	6.3 5.6 -	## #	2.5 1.7 1.0	#	6.6 6.7 7.1		YES	
Netherlands	1996 1997 1998		1.4 1.8 -		6.2 5.5 -	## #	-2.3 -1.4 -1.6		77.2 72.1 70.0		YES	
Austria	1996 1997 1998	*	1.8 1.1 -	*	6.3 5.6 -	##	-4.0 -2.5 -2.3		69.5 66.1 64.7		YES	
Portugal	1996 1997 1998		2.9 1.8 -		8.6 6.2 -	##	-3.2 -2.5 -2.2		65.0 62.0 60.0		YES	
Finland	1996 1997 1998	**	1.1 1.3 -	* *	7.1 5.9 -	##	-3.3 -0.9 0.3	# #	57.6 55.8 53.6		YES ^(h)	
Sweden	1996 1997 1998	*	0.8 1.9 -	*	8.0 6.5 -	##	-3.5 -0.8 0.5		76.7 76.6 74.1		NO	
United Kingdom	1996 1997 1998		2.5 1.8 -		7.9 7.0 -	## #	-4.8 -1.9 -0.6	# #	54.7 53.4 52.3		NO	

Table 2 Economic indicators and the Maastricht Treaty convergence criteria

Source: European Commission (1998) and EMI (1998).

*, **, *** = first, second and third best performer in terms of price stability.

= general government deficit not exceeding 3% of GDP; general government gross debt not exceeding 60% of GDP.

(a) Annual percentage changes; HICP is the harmonized index of consumer prices.

(b) in percentages.

(c) As a percentage of GDP.

Data for HICP inflation and long-term interest rate refer to the twelve-month period ending January 1998; European Commission (spring 1998 forecasts) for general government surplus or deficit and general government gross debt.

Table 3

Labour market indicators

1. Employment and unemployment in the whole economy ¹⁾

(annual percentage changes, seasonally adjusted, unless otherwise indicated)

	Employment						Unemployment			
	Total		By employment status		By selected sector		Total		Adult ²⁾	Youth ³⁾
	Index 1995 = 100		Employees	Self- employed	Industry excluding construction	Services	Millions	% of labour force	% of labour force	% of labour force
1	2	3	4	5	6	7	8	9	10	
1996	100.5	0.5	0.4	0.4	-1.3	1.6	14.729	11.5	9.8	23.9
1997	101.3	0.8	0.9	0.1	-0.4	1.5	14.817	11.5	9.9	23.2
1998	102.9	1.6	1.8	0.4	1.1	2.2	14.064	10.8	9.4	21.2
1999	104.6	1.7	2.2	-0.5	0.0	2.6	12.965	9.9	8.6	19.1
2000	106.8	2.1	2.4	0.3	0.8	2.8	11.661	8.8	7.7	17.1
2000 Q3	107.1	2.1	2.4	0.4	1.0	2.8	11.491	8.7	7.6	16.9
Q4	107.7	2.2	2.4	1.2	1.3	2.8	11.200	8.5	7.4	16.3
2000 Oct.	-	-	-	-	-	-	11.267	8.5	7.5	16.5
Nov.	-	-	-	-	-	-	11.195	8.5	7.4	16.3
Dec.	-	-	-	-	-	-	11.139	8.5	7.4	16.2
<i>Euro area enlargement</i>										
2001 Q1	108.0	2.0	2.2	0.8	1.4	2.5	11.495	8.4	7.3	16.5
Q2	108.2	1.6	1.7	0.6	0.8	2.0	11.408	8.4	7.3	16.5
Q3	.	.	.	.	.	.	11.389	8.3	7.3	16.4
2001 Jan.	-	-	-	-	-	-	11.566	8.5	7.4	16.6
Feb.	-	-	-	-	-	-	11.487	8.4	7.3	16.5
Mar.	-	-	-	-	-	-	11.432	8.4	7.3	16.4
Apr.	-	-	-	-	-	-	11.402	8.4	7.3	16.5
May	-	-	-	-	-	-	11.411	8.4	7.3	16.5
June	-	-	-	-	-	-	11.409	8.4	7.3	16.5
July	-	-	-	-	-	-	11.396	8.4	7.3	16.4
Aug.	-	-	-	-	-	-	11.380	8.3	7.3	16.4
Sep.	-	-	-	-	-	-	11.392	8.4	7.3	16.4
Oct.	-	-	-	-	-	-	11.436	8.4	7.3	16.4

Source: ECB Monthly Bulletin, December 2001

Table 4A GDP growth rates (annual percentage rates)

	1992	1993	1994	1995	1996	1997	1998
Austria	1.3	0.5	2.5	2.1	1.6	2.5	3.1
Belgium	1.5	-1.5	2.4	2.6	1.3	3	2.9
Denmark	1.3	0.8	5.8	3.2	3.2	3.3	2.4
Finland	-3.6	-1.2	4.5	5.1	3.6	6.1	5
France	1.2	-1.3	2.8	2.1	1.6	2.3	3.1
Germany	2.2	-1.2	2.7	1.2	1.3	2.2	2.7
Greece	0.7	-1.6	2	2.1	2.4	3.2	3
Ireland	4.2	3.1	7.3	11.1	7.4	9.8	9.1
Italy	0.6	-1.2	2.2	2.9	0.7	1.5	1.5
Luxembourg	4.5	8.7	4.2	3.8	3	4.8	4.7
Netherlands	2	0.8	3.2	2.3	3.1	3.6	3.8
Portugal	2.5	-1.1	2.2	2.9	3.2	3.7	4
Spain	0.7	-1.2	2.3	2.7	2.4	3.5	3.8
Sweden	-1.4	-2.2	3.3	3.9	1.3	1.8	2.8
UK	0.1	2.3	4.4	2.8	2.6	3.5	2.7
Average for EU countries	1.19	0.25	3.45	3.39	2.58	2.3	2.7

Source: OECD, *Economic Outlook*, and December 1998

Table 4B EU average GDP growth rates

	1992	1993	1994	1995	1996	1997	1998
Big EU Economies	1.03	-0.35	3.03	2.25	1.55	2.38	2.50
Small EU Economies	1.19	0.33	3.49	3.73	2.77	3.90	3.84
Difference	0.16	0.68	0.46	1.48	1.22	1.52	1.34

Source: Calc. based on Table 4A; Table 4C source: ECB Monthly Bulletin, Dec. 2001

Composition of real GDP growth in the euro area

(percentage changes, unless otherwise indicated; seasonally adjusted)

	Annual rates ¹⁾								Quarterly rates ²⁾				
	1998	1999	2000	2000	2000	2001	2001	2001	2000	2000	2001	2001	2001
				Q3	Q4	Q1	Q2	Q3	Q3	Q4	Q1	Q2	Q3
Real gross domestic product	2.9	2.6	3.4	3.2	2.8	2.5	1.7	1.3	0.5	0.6	0.5	0.1	0.1
of which:													
Domestic demand	3.6	3.2	2.8	2.8	2.2	1.7	1.0	0.4	0.2	0.4	0.1	0.3	-0.4
Private consumption	3.0	3.2	2.6	2.5	1.9	2.0	1.7	1.8	0.2	0.2	0.8	0.5	0.2
Government consumption	1.2	2.1	1.9	1.7	1.7	1.9	1.8	1.8	0.1	0.7	0.6	0.4	0.1
Gross fixed capital formation	5.2	5.4	4.4	4.2	2.9	1.0	-0.2	-1.4	1.0	-0.4	-0.3	-0.5	-0.3
Changes in inventories ^{3) 4)}	0.4	-0.2	0.0	0.1	0.1	-0.1	-0.3	-0.6	-0.2	0.3	-0.4	0.0	-0.5
Net exports ³⁾	-0.6	-0.5	0.6	0.4	0.7	0.8	0.7	0.9	0.3	0.1	0.4	-0.2	0.5
Exports ⁵⁾	7.3	5.2	11.9	12.3	12.0	8.8	5.6	1.4	3.5	2.4	-0.2	-0.2	-0.6
of which goods	7.4	4.9	12.2	12.2	12.4	9.7	4.8	.	3.3	2.5	0.0	-1.1	.
Imports ⁵⁾	10.0	7.2	10.7	11.5	10.6	6.8	3.9	-0.9	2.8	2.1	-1.4	0.3	-1.9
of which goods	10.4	7.0	11.1	12.2	12.2	7.6	4.1	.	3.3	2.3	-1.7	0.3	.

Table 5

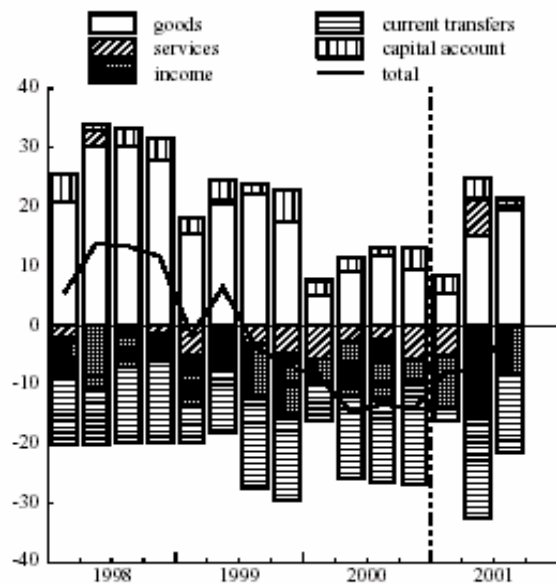
Summary balance of payments ¹⁾²⁾

(EUR billions (ECU billions to end-1998); net flows)

	Current account					Capital account	Financial account						Errors and omissions
	Total	Goods	Services	Income	Current transfers		Total	Direct investment	Portfolio investment	Financial derivatives	Other investment	Reserve assets	
	1	2	3	4	5	6	7	8	9	10	11	12	13
1997	62.1	116.4	3.1	-15.2	-42.2	13.0	.	-44.5	-24.3	.	.	.	.
1998	31.9	109.0	-1.1	-28.8	-47.2	12.4	-68.4	-81.3	-110.0	-8.2	123.0	8.2	24.1
1999	-18.3	75.6	-11.9	-35.7	-46.3	12.9	10.9	-118.1	-45.7	4.5	160.1	10.1	-5.5
2000	-59.9	35.6	-16.1	-26.7	-52.6	9.7	93.4	17.6	-111.5	-1.7	171.5	17.6	-43.2
2000 Q3	-14.8	11.8	-2.3	-9.6	-14.6	1.5	-5.3	-87.2	0.3	-0.3	77.2	4.7	18.6
Q4	-17.4	9.5	-5.6	-3.9	-17.4	3.5	25.7	-13.5	12.7	-8.5	24.4	10.7	-11.8
2000 July	-5.1	7.1	0.1	-6.4	-5.8	0.4	-4.7	-19.1	-9.7	-1.8	26.4	-0.4	9.3
Aug.	-6.7	1.8	-1.2	-1.4	-6.0	0.2	7.0	-35.4	14.0	-0.4	27.9	1.1	-0.6
Sep.	-3.0	2.8	-1.2	-1.8	-2.8	0.8	-7.6	-32.6	-4.0	1.9	23.0	4.0	9.8
Oct.	-5.4	4.3	-1.6	-2.0	-6.2	0.3	0.8	-18.4	0.5	-2.1	19.9	0.7	4.4
Nov.	-5.0	1.9	-0.8	-0.8	-5.2	1.4	3.7	1.4	2.2	-2.5	-5.1	7.7	-0.2
Dec.	-7.0	3.3	-3.2	-1.1	-5.9	1.8	21.2	3.4	9.9	-4.0	9.6	2.3	-16.0
<i>Euro area enlargement</i>													
2001 Q1	-10.5	5.5	-5.0	-9.1	-1.9	2.9	30.6	-40.6	-38.5	-2.0	102.2	9.5	-23.0
Q2	-11.3	15.1	6.2	-15.6	-17.0	3.5	-10.2	-50.5	27.8	0.0	10.0	2.5	18.0
Q3	-1.3	19.4	0.8	-8.4	-13.1	1.1	-41.3	-11.9	62.5	-8.9	-85.3	2.4	41.4
2001 Jan.	-11.1	-3.9	-2.4	-7.5	2.7	1.3	2.3	-9.9	-42.8	-4.6	57.2	2.4	7.5
Feb.	1.2	3.3	-1.1	-0.6	-0.5	1.5	7.7	2.4	-2.3	-0.7	3.8	4.5	-10.4
Mar.	-0.6	6.0	-1.5	-1.0	-4.0	0.1	20.6	-33.2	6.6	3.3	41.2	2.7	-20.1
Apr.	-6.7	2.9	1.6	-6.8	-4.5	2.2	12.5	0.7	-20.5	1.6	23.7	7.0	-8.0
May	-3.0	4.1	2.7	-4.4	-5.3	0.5	-8.7	-40.9	16.0	3.4	16.3	-3.6	11.2
June	-1.6	8.1	1.9	-4.4	-7.3	0.9	-14.0	-10.4	32.2	-5.0	-29.9	-0.8	14.8
July	-4.1	8.5	0.9	-8.1	-5.4	0.4	-12.0	7.2	1.6	-4.8	-16.0	0.0	15.7
Aug.	4.2	6.0	0.8	0.3	-2.9	0.6	0.3	-6.0	17.8	-3.1	-12.6	4.1	-5.1
Sep.	-1.3	5.0	-0.9	-0.7	-4.7	0.0	-29.5	-13.1	43.0	-1.0	-56.7	-1.6	30.8

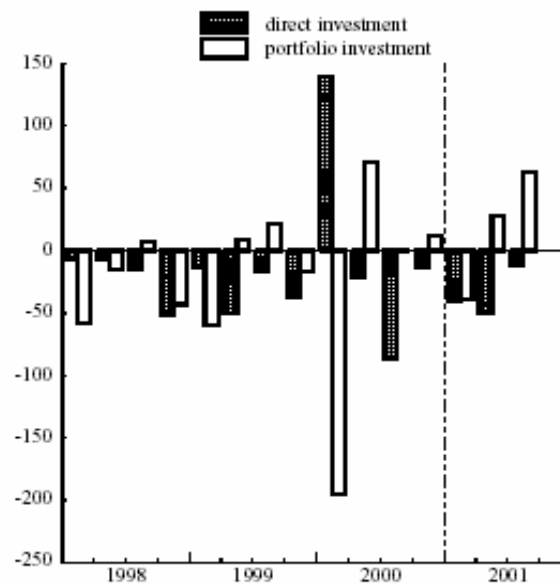
Current and capital accounts

(EUR billions (ECU billions to end-1998); net flows)



Direct and portfolio investment

(EUR billions (ECU billions to end-1998); net flows)



Source: ECB.

1) Inflows (+); outflows (-). Reserve assets: increase (-); decrease (+).

2) For the comparability of recent and some earlier data, see the general notes.

Source: European Central Bank: Monthly Bulletin, December 2001

Table 5A
Shares of Euro area exports and imports of goods for the main trading partners

(in EUR billions (i.e. 100 billions to end-1999); not seasonally adjusted, unless otherwise indicated)

	Total	Total (s.a.)	United Kingdom	Sweden	Denmark	Candidate countries	Switzerland	United States	Japan	Asia excl. Japan	Africa	Latin America	Other countries
	1	2	3	4	5	6	7	8	9	10	11	12	13
Exports (f.o.b.)													
1997	762.8	-	141.7	29.2	19.4	90.2	46.8	102.6	26.5	132.7	43.1	38.1	92.4
1998	797.1	-	150.2	31.5	20.5	101.5	51.1	119.9	23.9	114.9	49.7	42.4	91.5
1999	832.8	-	161.4	33.1	21.1	102.9	56.1	135.1	26.8	119.2	48.4	39.1	89.6
2000	1,010.1	-	188.9	38.6	23.1	130.7	63.2	171.0	34.1	150.8	55.9	46.5	107.2
2000 Q2	248.4	244.7	46.6	9.7	5.7	32.4	15.5	41.0	7.9	36.8	14.6	11.0	27.1
Q3	251.0	257.2	46.2	9.1	5.5	32.7	15.5	43.1	8.7	37.8	13.6	12.1	26.8
Q4	279.8	269.6	50.8	10.5	6.3	36.9	17.0	48.0	9.3	43.3	15.4	13.4	29.0
Euro area enlargement													
2001 Q1	258.7	265.3	49.3	9.6	6.1	33.3	17.0	45.1	9.2	39.8	14.3	12.1	22.9
Q2	265.7	265.2	50.7	9.0	7.2	34.0	16.6	45.1	8.4	40.4	15.3	12.7	26.4
Q3	258.4	267.1	.	.	.	.	.	.	.	.	.	.	.
2001 Apr.	83.3	87.1	15.9	3.0	2.0	10.3	5.3	14.4	2.6	12.5	4.9	4.0	8.4
May	90.8	88.3	16.8	3.0	3.2	11.9	5.8	15.2	2.8	13.9	5.2	4.3	8.7
June	91.5	89.9	18.0	3.0	2.0	11.7	5.5	15.5	3.0	14.0	5.1	4.5	9.3
July	91.6	86.8	17.1	2.4	1.9	11.3	5.6	16.6	2.8	14.5	5.1	4.7	.
Aug.	81.6	90.9	.	.	.	10.1	5.1	13.6	2.6	13.2	4.7	4.0	.
Sep.	85.2	89.4	.	.	.	.	.	.	.	.	.	.	.
% change versus previous year													
2001 Sep.	-1.7	-	.	.	.	.	.	.	.	.	.	.	.
Imports (c.i.f.)													
1997	674.2	-	117.7	27.1	16.9	60.2	36.9	94.3	43.3	124.8	49.7	28.4	74.8
1998	711.4	-	122.3	30.8	17.3	71.6	40.9	104.8	48.5	132.0	45.8	29.3	68.0
1999	781.2	-	131.0	33.2	18.6	80.4	43.2	113.2	53.9	151.8	49.0	30.4	76.5
2000	1,003.0	-	155.5	37.5	21.7	100.8	49.8	139.7	64.6	211.0	72.1	39.5	110.9
2000 Q2	244.5	242.0	37.4	9.6	5.2	24.6	12.2	35.2	16.7	49.9	16.7	10.6	26.4
Q3	246.4	257.9	36.6	8.6	5.2	25.0	11.9	33.8	15.1	54.6	17.8	10.0	27.9
Q4	278.8	273.8	43.8	10.2	6.1	27.7	13.2	38.8	17.0	59.4	20.9	10.2	31.5
Euro area enlargement													
2001 Q1	260.5	257.2	38.7	8.9	5.2	29.0	13.5	37.5	16.1	53.8	19.8	9.8	28.3
Q2	257.9	257.9	38.9	8.5	5.1	29.3	13.1	35.9	15.7	51.9	18.9	11.1	29.5
Q3	241.1	254.0	.	.	.	.	.	.	.	.	.	.	.
2001 Apr.	83.7	86.0	12.6	2.8	1.7	9.3	4.3	11.8	5.5	16.8	6.1	3.4	9.4
May	87.9	84.5	13.4	2.9	1.7	9.9	4.5	12.1	5.4	17.6	6.3	3.9	10.2
June	86.3	87.3	13.0	2.8	1.7	10.1	4.3	12.1	4.8	17.5	6.4	3.8	9.9
July	83.1	84.8	11.6	2.4	1.7	9.9	4.5	10.7	4.6	16.8	6.4	3.5	.
Aug.	76.6	85.0	.	.	.	8.6	3.4	10.6	4.1	16.6	5.6	3.2	.
Sep.	81.4	84.2	.	.	.	.	.	.	.	.	.	.	.
% change versus previous year													
2001 Sep.	-8.7	-	.	.	.	.	.	.	.	.	.	.	.
Balance													
1997	88.6	-	23.9	2.1	2.5	30.0	9.9	8.3	-16.9	8.0	-6.5	9.7	17.5
1998	85.7	-	27.8	0.7	3.2	29.9	10.2	15.1	-24.6	-17.2	3.9	13.1	23.5
1999	51.6	-	30.4	-0.1	2.6	22.5	12.9	21.9	-27.1	-32.6	-0.6	8.7	13.1
2000	7.2	-	33.4	1.1	1.4	29.9	13.4	31.3	-30.5	-60.1	-16.1	7.1	-3.6
2000 Q2	3.9	2.7	9.2	0.1	0.5	7.8	3.3	5.9	-8.8	-13.1	-2.1	0.4	0.7
Q3	4.6	-0.7	9.6	0.5	0.3	7.7	3.5	9.3	-6.3	-16.8	-4.2	2.1	-1.1
Q4	1.0	-4.2	7.0	0.3	0.2	9.1	3.8	9.2	-7.7	-16.1	-5.5	3.1	-2.5
Euro area enlargement													
2001 Q1	-1.8	8.1	10.6	0.8	0.9	4.4	3.5	7.6	-7.0	-14.0	-5.5	2.3	-5.4
Q2	7.8	7.3	11.7	0.5	2.1	4.7	3.4	9.2	-7.3	-11.5	-3.6	1.6	-3.1
Q3	17.3	13.1	.	.	.	.	.	.	.	.	.	.	.
2001 Apr.	-0.4	1.0	3.3	0.2	0.3	1.1	1.0	2.6	-2.9	-4.3	-1.2	0.6	-1.0
May	2.9	3.8	3.4	0.2	1.5	2.0	1.3	3.1	-2.6	-3.7	-1.1	0.4	-1.5
June	5.2	2.5	5.0	0.2	0.4	1.6	1.2	3.4	-1.8	-3.5	-1.3	0.7	-0.6
July	8.5	1.9	5.5	0.0	0.2	1.5	1.1	5.8	-1.7	-2.3	-1.3	1.3	.
Aug.	5.1	6.0	.	.	.	1.5	1.6	2.9	-1.5	-3.4	-0.8	0.7	.
Sep.	3.8	5.2	.	.	.	.	.	.	.	.	.	.	.

Sources: Eurostat and ECB calculations based on Eurostat data (balance and other countries).

1) Owing to differences in definitions, coverage and time of recording, trade data (as compiled by Eurostat) are not fully comparable with the goods item in the balance of payments statistics compiled by the ECB (Tables 8.1 and 8.2).

Source: European Central Bank: Monthly Bulletin, December 2001

Table 6
Harmonized Index of Consumer Prices and its components

Price and cost developments in the euro area

(annual percentage changes, unless otherwise indicated)

	1998	1999	2000	2000 Q4	2001 Q1	2001 Q2	2001 Q3	2001 June	2001 July	2001 Aug.	2001 Sep.	2001 Oct.	2001 Nov.
Harmonised Index of Consumer Prices (HICP) and its components													
Overall index	1.2	1.1	2.4	2.7	2.6	3.2	2.7	3.1	2.8	2.8	2.5	2.4	.
<i>of which:</i>													
Goods	0.7	0.9	2.7	3.3	2.8	3.5	2.7	3.4	3.1	2.8	2.3	2.1	.
Food	1.7	0.6	1.4	2.2	3.2	5.0	5.3	5.4	5.5	5.2	5.2	5.2	.
Processed food	1.5	1.0	1.2	1.4	2.0	2.8	3.4	3.1	3.3	3.4	3.5	3.6	.
Unprocessed food	2.1	0.1	1.7	3.4	5.2	8.4	8.1	9.1	8.8	7.8	7.8	7.8	.
Industrial goods	0.2	1.0	3.4	3.8	2.6	2.8	1.5	2.4	1.9	1.7	0.9	0.6	.
Non-energy industrial goods	1.0	0.7	0.7	1.1	1.2	1.5	1.6	1.5	1.6	1.5	1.6	1.6	.
Energy	-2.6	2.3	13.4	13.8	7.3	7.3	1.2	5.4	2.9	2.1	-1.3	-2.7	.
Services	2.0	1.6	1.7	1.9	2.3	2.5	2.6	2.6	2.6	2.6	2.7	2.8	.
Other price and cost indicators													
Industrial producer prices ¹⁾	-0.7	-0.4	5.5	6.2	4.6	3.7	1.5	3.2	2.1	1.7	0.7	-0.6	.
Unit labour costs ²⁾	0.3	1.3	1.1	1.7	2.1	2.3	.	-	-	-	-	-	-
Labour productivity ²⁾	1.2	0.9	1.4	0.4	0.2	0.0	.	-	-	-	-	-	-
Compensation per employee ²⁾	1.5	2.3	2.5	2.1	2.2	2.4	.	-	-	-	-	-	-
Total hourly labour costs ³⁾	1.7	2.2	3.4	3.1	3.1	2.8	.	-	-	-	-	-	-
Oil prices (EUR per barrel) ⁴⁾	12.0	17.1	31.0	34.5	28.4	31.7	29.0	32.5	29.4	28.7	28.8	23.8	21.7
Commodity prices ⁵⁾	-12.5	-3.1	18.1	16.4	1.4	-0.9	-9.4	2.5	-1.0	-10.1	-16.7	-17.8	-15.6

Sources: Eurostat, national data, International Petroleum Exchange, HWWA (Hamburg Institute of International Economics) and ECB calculations.

Note: Data refer to the Euro 12 (including periods prior to 2001).

1) Excluding construction.

2) Whole economy.

3) Whole economy (excluding agriculture, public administration, education, health and other services).

4) Brent Blend (for one-month forward delivery). In ECU up to December 1998.

5) Excluding energy. In euro; in ECU up to December 1998.

Source: European Central Bank: Monthly Bulletin, December 2001

Table 7

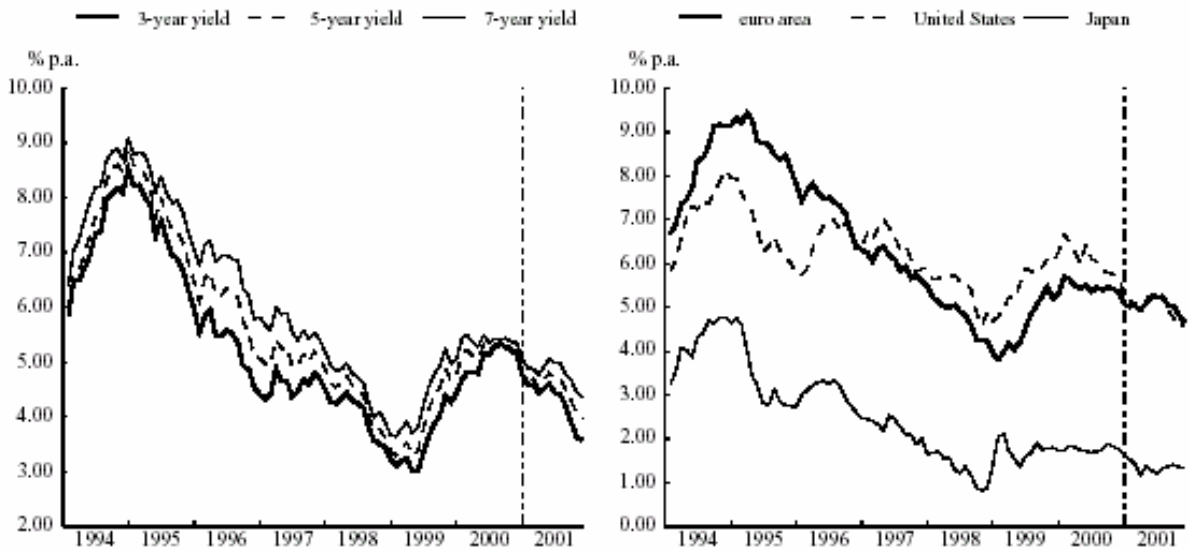
Interest Rate Comparisons

Government bond yields ¹⁾
(percentages per annum)

	Euro area ²⁾					United States	Japan
	2 years ¹	3 years ²	5 years ³	7 years ⁴	10 years ⁵	10 years ⁶	10 years ⁷
1996	4.17	4.41	5.06	5.82	7.23	6.54	3.03
1997	4.33	4.51	4.87	5.20	5.99	6.45	2.15
1998	3.16	3.22	3.38	3.67	4.71	5.33	1.30
1999	3.38	3.63	4.01	4.38	4.66	5.64	1.75
2000	4.90	5.03	5.19	5.37	5.44	6.03	1.76
2000 Nov.	5.12	5.15	5.19	5.35	5.34	5.72	1.75
Dec.	4.74	4.77	4.82	5.05	5.07	5.23	1.62
<i>Euro area enlargement</i>							
2001 Jan.	4.55	4.57	4.67	4.90	5.01	5.14	1.54
Feb.	4.56	4.59	4.69	4.88	5.02	5.10	1.43
Mar.	4.44	4.44	4.56	4.78	4.94	4.89	1.19
Apr.	4.49	4.51	4.66	4.90	5.10	5.13	1.36
May	4.56	4.60	4.80	5.05	5.26	5.37	1.28
June	4.39	4.44	4.70	4.99	5.21	5.26	1.19
July	4.33	4.42	4.70	4.99	5.25	5.23	1.33
Aug.	4.11	4.19	4.49	4.78	5.06	4.97	1.36
Sep.	3.77	3.89	4.29	4.67	5.04	4.76	1.40
Oct.	3.44	3.63	4.05	4.44	4.82	4.55	1.36
Nov.	3.36	3.58	3.98	4.37	4.67	4.61	1.33
2001 2 Nov.	3.18	3.37	3.79	4.19	4.54	4.35	1.31
9	3.15	3.38	3.77	4.19	4.52	4.29	1.32
16	3.50	3.72	4.10	4.47	4.76	4.80	1.36
23	3.57	3.81	4.20	4.54	4.80	5.00	1.32
30	3.48	3.70	4.09	4.47	4.75	4.74	1.36

Euro area government bond yields
(monthly)

10-year government bond yields
(monthly)



Sources: Reuters, ECB, Federal Reserve and Bank of Japan.

1) To December 1998, 2, 3, 5 and 7-year euro area yields are end-of-period values and 10-year yields are period averages. Thereafter, all yields are period averages.

2) To December 1998, euro area yields are calculated on the basis of harmonised national government bond yields weighted by GDP. Thereafter, the weights are the nominal outstanding amounts of government bonds in each maturity band.

Source: European Central Bank: Monthly Bulletin, December, 2001

Table 8 Chronology of monetary policy measures of the Eurosystem

22 December 1998

The Governing Council of the ECB decides that the first main refinancing operation of the Eurosystem will be a fixed rate tender offered at an interest rate of 3.0% a level that it intends to maintain for the foreseeable future. This operation will be initiated on 4 January 1999, while the allotment decision will be taken on 5 January 1999 and settlement will take place on 7 January 1999. In addition, the first longer-term refinancing operation will be announced on 12 January 1999 (with a settlement date of 14 January 1999) and will be conducted through a variable rate tender using the single rate allotment procedure.

The Governing Council furthermore decides that the interest rate for the marginal lending facility will be set a level of 4.5% and the interest rate for the deposit facility at a level of 2.0% for the start of Stage Three, i.e. 1 January 1999. As a transitional measure, between 4 and 21 January 1999, the interest rate for the marginal lending facility will be set at a level of 3.25% and the interest rate for the deposit facility at a level 2.75%. The Governing Council intends to terminate this transitional measure following its meeting on 21 January 1999.

31 December 1998

In accordance with Article 1091 (4) of the Treaty establishing the European Community, the EU Council, acting with the unanimity of the Member States of the European Community without a derogation, upon a proposal from the European Community and after consultation of the ECB, adopts the irrevocable conversion rates for the Euro, with effect from 1 January 1999, 0.00 a.m. (local time).

The ministers of the Euro area Member States, the ECB and ministers and central bank governors of Denmark and Greece decide, in a common procedure involving the European Commission and after consultation of the Monetary Committee, to fix the central rates against the Euro for the currencies participating in the exchange rate mechanism which comes into operation on 1 January 1999. Further to this decision on the Euro central rates, the ECB, Denmark National Bank and the Bank of Greece establish by common accord the compulsory intervention rates for the Danish krone and the Greek drachma. A fluctuation band of +/- 2.25% will be observed around the Euro central rate for the Danish krone. The standard fluctuation band of +/- 15% will be observed around the Euro central rate for the Greek drachma.

7 January 1999

The Governing Council of the ECB decides that for the two main refinancing operations to be announced on 11 and 18 January 1999 respectively the same conditions will apply as for the first such operation, which was settled on 7 January 1999, i.e. they will be fixed rate tenders conducted at an interest rate of 3.0%

12 January 1999

Following the decision of the Governing Council of the ECB on 22 December 1998, the ECB announces that the first longer-term refinancing operation for the Eurosystem will be conducted as variable rate tenders using the single rate method of allotment. With a view to phasing in the longer-term refinancing operations, the first such operation is conducted through three parallel tenders with three different maturities, namely 25 February, 25 March and 29 April 1999. The ECB also announces that the intention is to allot an amount of 15 billion in each of these parallel tenders. For the subsequent longer-term refinancing operation in the first three months of 1999, the intention is to allot an unchanged amount of 15 billion per operation.

21 January 1999

The Governing Council of the ECB decides to revert to the interest rates on the Eurosystem's two standing facilities which it had set for the start of Stage Three, i.e. to set the interest rate for the marginal lending facility at a level of 4.5% and that for the deposit facility at a level of 2.0% with effect from 22 January 1999. Furthermore, it decides that for the two main refinancing operations to be settled on 27 January and 3 February 1999 respectively the same conditions will apply as for the first three such operations settled earlier in January, i.e. they will be fixed rate tenders conducted at an interest rate 3.0%

4 February 1999

The

Governing Council of the ECB decides that for the main refinancing operations to be settled on 10 and 17 February 1999 the same conditions will apply as for the first such operations settled earlier in the year, i.e. they will be fixed tenders conducted at an interest rate of 3.0%. In addition, the interest rate on the marginal lending facility continues to be 4.5% and the interest rate on the deposit facility remains 2.0%.

18 February 1999

The

Governing Council of the ECB decides that for the main refinancing operations to be settled on 24 February and 3 March 1999 the same conditions will apply as for the first such operations settled earlier in the year, i.e. they will be fixed tenders conducted at an interest rate of 3.0%. In addition, the interest rate on the marginal lending facility continues to be 4.5% and the interest rate on the deposit facility remains 2.0%.

4 March 1999

The

Governing Council of the ECB decides that for the main refinancing operations to be settled on 10 and 17 March 1999 the same conditions will apply as for the first such operations settled earlier in the year, i.e. they will be fixed tenders conducted at an interest rate of 3.0%. In addition, the interest rate on the marginal lending facility continues to be 4.5% and the interest rate on the deposit facility remains 2.0%. The Governing Council also decides that for forthcoming longer-term refinancing operations of the Eurosystem the multiple rate method of allotment will be applied (starting from the operation with a settlement date of 25 March 1999) until otherwise indicated.

18 March 1999

The

Governing Council of the ECB decides that for the main refinancing operations to be settled on 24 and 31 March and 7 April 1999. The same conditions will apply as for the first such operations settled earlier in the year, i.e. they will be fixed tenders conducted at an interest rate of 3.0%. In addition, the interest rate on the marginal lending facility continues to be 4.5% and the interest rate on the deposit facility remains 2.0%.

8 April 1999

The

Governing Council of the ECB decides to reduce the interest rate on the main refinancing operation by 0.5 percentage point to 2.5%, starting with the operation to be settled on 14 April 1999. In addition, it decides to lower the interest rate on the marginal lending facility by 1 percentage point to 3.5% and the interest rate on the deposit facility by 0.5 percentage point to 1.5% both with effect from 9 April 1999.

22 April 1999, 6 May 1999, 2 June, 17 June, 1 July, 15 July, 29 July, 26 August, 9 September 1999, 23 September 1999, 7 October 1999

The

Governing Council of the ECB decides that the interest rates on the main refinancing operations, the marginal lending facility and the deposit facility will remain unchanged at 2.5%, 3.5% and 1.5% respectively.

4 November 1999

The

Governing Council of the ECB decides to raise the interest rate on the main refinancing operations of the Eurosystem by 0.5 percentage point to 3.0%, with effect from the operation to be settled on 10 November 1999. In addition, it decides to increase the interest rates on both the marginal lending facility and the deposit facility by 0.5 percentage point to 4.0% and 2.0% respectively, both with effect from 5 November 1999.

18 November 1999, 2 December 1999, 15 December 1999

The

Governing Council of the ECB decides that the interest rates on the main refinancing operations, the marginal lending facility and the deposit facility will remain unchanged at 3.0%, 4.0% and 2.0% respectively.

The Governing Council also decides to confirm the reference value for monetary growth, namely an annual growth rate 4.5% for the broad monetary aggregate M3. This decision is taken on the grounds that the components underlying the derivation of the reference value, namely the Eurosystem's definition of price stability (an annual increase in the HICP for the euro area of below 2%), the estimate for the trend of real GDP growth (2% to 2.5% and that for the trend decline in M3 income velocity (.5% to 1% per annum), have

basically remained unchanged. As before, the Governing Council will assess monetary developments in relation to the reference value on the basis of a three month moving average of annual growth rates. The Governing Council also decides to review the reference value henceforth on a regular annual basis. The next review will take place in December 2000.

4 January 2000

The ECB announces that on 5 January 2000 the Eurosystem will conduct a liquidity-absorbing fine-tuning operation with same-day settlement. This measure aims at restoring normal liquidity conditions in the money market after the successful transition to the year 2000.

5 January 2000, 20 January 2000,

The Governing Council of the ECB decides that the interest rates on the main refinancing operations, the marginal lending facility and the deposit facility will remain unchanged at 3.0%, 4.0% and 2.0% respectively.

3 February 2000

The Governing Council of the ECB decides to raise the interest rate on the main refinancing operations of the Eurosystem by 0.25 percentage point to 3.25%, with effect from the operation to be settled on 9 February 2000. In addition, it decides to increase the interest rates on both the marginal lending facility and the deposit facility by 0.25 percentage point to 4.25% and 2.25% respectively, both with effect from 4 February 2000.

17 February, 2 March 2000

The Governing Council of the ECB decides that the interest rates on the main refinancing operations, the marginal lending facility and the deposit facility will remain unchanged at 3.25%, 4.25% and 2.25% respectively.

16 March 2000

The Governing Council of the ECB decides to raise the interest rate on the main refinancing operations of the Eurosystem by 0.25 percentage point to 3.5%, with effect from the operation to be settled on 22 March 2000. In addition, it decides to increase the interest rates on both the marginal lending facility and the deposit facility by 0.25 percentage point to 4.5% and 2.5% respectively, both with effect from 17 March 2000.

30 March, 13 April 2000

The Governing Council of the ECB decides that the interest rates on the main refinancing operations, the marginal lending facility and the deposit facility will remain unchanged at 3.5%, 4.5% and 2.5% respectively.

27 April 2000

The Governing Council of the ECB decides to raise the interest rate on the main refinancing operations of the Eurosystem by 0.25 percentage point to 3.75%, with effect from the operation to be settled on 4 May 2000. In addition, it decides to increase the interest rates on both the marginal lending facility and the deposit facility by 0.25 percentage point to 4.75% and 2.75% respectively, both with effect from 28 April 2000.

8 June 2000

The Governing Council of the ECB decides to raise the interest rate on the main refinancing operations of the Eurosystem by 0.50 percentage point to 4.25% and to apply this in the two operations (which will be conducted as fixed rate tenders) to be settled on 15 and 21 June 2000. In addition, it decides to increase the interest rates in both the marginal lending facility and the deposit facility by 0.50 percentage point, to 5.25% and 3.25% respectively, both with effect from 9 June 2000.

It also announces that, starting from the operation to be settled on 28 June 2000, the main refinancing operations of the Eurosystem will be conducted as variable rate tenders, applying the multiple rate auction procedure. The Governing Council decides to set a minimum bid rate for these operations equal to 4.25%. The switch to variable rate tenders in the main refinancing operations is not intended as a further change in

the monetary policy stance of the Eurosystem, but as a response to the severe overbidding which has developed in the context of the current fixed rate tender procedure.

19 June 2000

In accordance with Article 122 (2) of the Treaty establishing the European Community, the ECOFIN Council decides that Greece fulfils the necessary conditions on the basis of the criteria set out in Article 121 (1) and abrogates the derogation of Greece with effect from 1 January 2001. The ECOFIN Council took its decision, taking account of the reports of the European Commission and the ECB on the progress made in the fulfillment by Sweden and Greece of their obligation regarding the achievement of Economic and Monetary Union, after consulting the European Parliament, and after a discussion in the EU Council meeting in the composition of Heads of State or Government.

The ECOFIN Council, acting with the unanimity of the Member States of the European Community without a derogation and the Member State concerned, upon a proposal from the European Commission and after consultation of the ECB, also adopts the irrevocable conversion rate between the Greek drachma and the euro with effect from 1 January 2001. Following the determination of the euro conversion rate of the Greek drachma (which is equal to its prevailing central rate against the euro in the exchange rate mechanism, ERM II), the ECB and the Bank of Greece announce that they will monitor the convergence of the market exchange rate of the Greek drachma against the euro towards its euro conversion rate, which should be completed at the latest by 29 December 2000.

21 June 2000

The Governing Council of the ECB decides that the interest rates on the marginal lending facility and the deposit facility will remain unchanged at 5.25% and 3.25% respectively. It reiterates that, as announced on 8 June 2000, the forthcoming main refinancing operations of the Eurosystem will be conducted as variable rate tenders, apply the multiple rate auction procedure, with a minimum bid rate of 4.25%

The Governing Council also announces that, for the longer-term refinancing operations to be conducted in the second half of 2000, the Eurosystem intends to allot an amount of 15 billion per operation. This amount takes into consideration the expected liquidity needs of the banking system of the euro area in the second half of 2000 and the desire of the Eurosystem to continue to provide the bulk of its refinancing of the financial sector through its main refinancing operations.

6 July, 20 July, 3 August 2000

The Governing Council of the ECB decides that the minimum bid rate on the main refinancing operations and the interest rates on the marginal lending facility and the deposit facility will remain unchanged at 4.25%, 5.25% and 3.25% respectively.

31 August 2000

The Governing Council of the ECB decides to raise the minimum bid rate on the main refinancing operations of the Eurosystem by 0.25 percentage points to 4.50%, with effect from the operation to be settled on 6 September 2000. In addition, it decides to increase the interest rates on both the marginal lending facility and the deposit facility by 0.25 percentage point, to 5.50% and 3.50%, respectively, both with effect from 1 September.

14 September 2000, 5 October 2000, 19 October 2000, 2 November 2000, 16 November 2000, 30 November 2000, 14 December 2000

The Governing Council of the ECB decides that the minimum bid rate on the main refinancing operations and the interest rates on the marginal lending facility and the deposit facility will remain unchanged at 4.50%, 5.50% and 3.50% respectively.

In addition, on 14 December 2000, it decides to reconfirm the existing reference value for monetary growth, namely an annual growth rate of 4½% for the broad aggregate M3. This decision is taken on the grounds that the available evidence continues to support the assumptions underlying the initial derivation of the reference value in December 1998 (and its confirmation in December 1999), namely that, over the medium term, M3 income velocity declines at a trend rate in the range from ½% to 1% per annum and potential output grows at

a trend rate between 2% and 2½% per annum. The Governing Council will undertake the next review of the reference value in December 2001.

2 January 2001 On 1 January 2001 the euro was introduced in Greece. Greece thus became the twelfth EU member State to adopt the single currency and the first to do so since the start of Stage Three of Economic and Monetary Union (EMU) on 1 January 1999.

18 January, 1 February, 15 February, 1 March, 15 March, 29 March, 11 April, 26 April 2001

The Governing Council of the ECB decides that the minimum bid rate for the main refinancing operations and the interest rates on the marginal lending facility and the deposit facility will remain unchanged at 4.75%, 5.75% and 3.75% respectively.

10 May 2001

The Governing Council of the ECB decides to lower the minimum bid rate on the main refinancing operations by 0.25 percentage point to 4.50%, with effect from the operation to be settled on 15 May 2001. In addition, it decides to lower the interest rates on both the marginal lending facility and the deposit facility by 0.25 percentage point, to 5.50% and 3.50% respectively, both with effect from 11 May 2001.

23 May, 7 June, 21 June, 5 July, 19 July, 2 August 2001

The Governing Council of the ECB decides that the minimum bid rate on the main refinancing operations and the interest rates on the marginal lending facility and the deposit facility will remain unchanged at 4.50%, 5.50% and 3.50% respectively.

30 August 2001

The Governing Council of the ECB decides to lower the minimum bid rate on the main refinancing operations by 0.25 percentage point to 4.25%, with effect from the operation to be settled on 5 September 2001. In addition, it decides to lower the interest rates on both the marginal lending facility and the deposit facility by 0.25 percentage point, to 5.25% and 3.25% respectively, both with effect from 31 August 2001.

17 September 2001

The Governing Council of the ECB decides to lower the minimum bid rate on the main refinancing operations by 0.50 percentage point to 3.75%, with effect from the operation to be settled on 19 September 2001. In addition, it decides to lower the interest rates on both the marginal lending facility and the deposit facility by 0.50 percentage point, to 4.75% and 2.75% respectively, both with effect from 18 September 2001.

27 September, 11 October, 25 October 2001

The Governing Council of the ECB decides that the minimum bid rate on the main refinancing operations and the interest rates on the marginal lending facility and the deposit facility will remain unchanged at 3.75%, 4.75% and 2.75% respectively.

8 November 2001

The Governing Council of the ECB decides to lower the minimum bid rate on the main refinancing operations by 0.50 percentage point to 3.25%, starting from the operation to be settled on 14 November 2001. In addition, it decides to lower the interest rates on both the marginal lending facility and the deposit facility by 0.50 percentage point, to 4.25% and 2.25% respectively, both with effect from 9 November 2001.

6 December 2001

The Governing Council of the ECB decided to leave the minimum bid rate on the main refinancing operations of the Eurosystem, conducted as variable rate tenders, unchanged at 3.25%. The interest rates on the marginal lending facility and the deposit facility were also left unchanged at 4.25% and 2.25% respectively. (see chart 1)

In addition, it decides that the reference value for the annual growth rate of the broad monetary aggregate M3 will remain at 4½%.

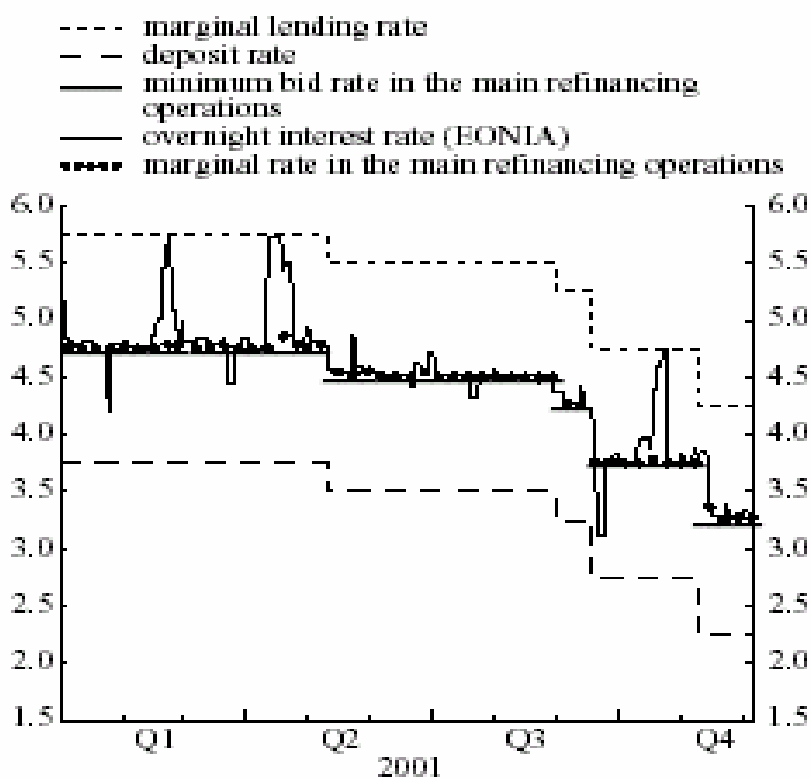
The current level of key ECB interest rates is considered appropriate to maintain price stability in the euro area over the medium term. This assessment is based on the analysis of the information provided under the

two pillars of the ECB's monetary policy strategy. Starting with the analysis under the first pillar of the ECB's monetary policy strategy, the three-month average of the annual growth rates of M3 rose to 6.8% in the period from August to October 2001 from 6.2% in the period from July to September. This was significantly above the medium-term reference value for annual M3 growth of 4½%. The Governing Council confirmed the reference value of 4½% at its meeting on 6 December. This decision was taken on the grounds that the evidence continues to support the medium-term assumptions underlying the derivation of the reference value, namely those for trend potential output growth of 2-2½% per annum and for a trend decline in M3 income velocity of ½-1% per annum in the euro area.

Chart 1

ECB interest rates and money market rates

(percentages per annum; daily data)



Sources: ECB and Reuters.

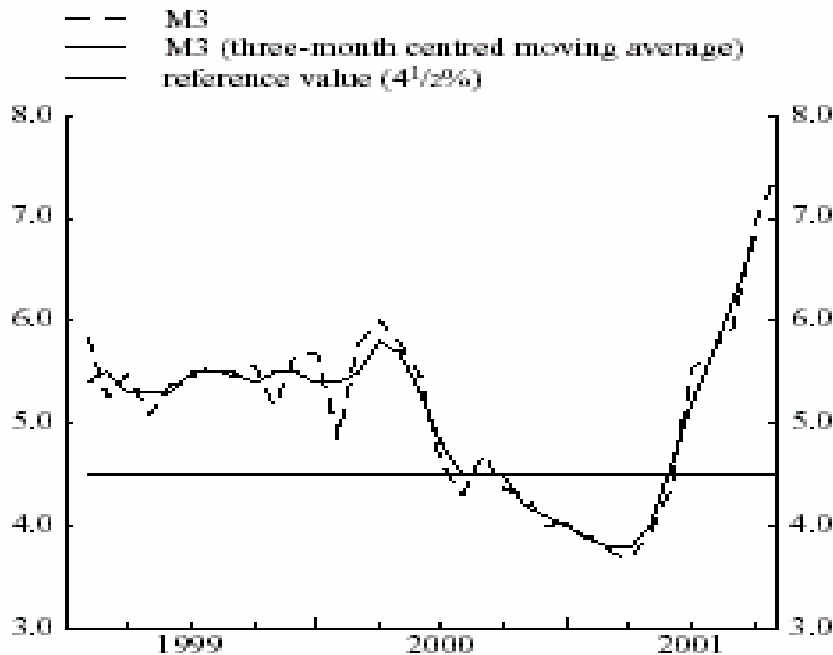
Ongoing dynamic growth of M3

In the period from August to October 2001, the three-month average of the annual growth rates of M3 (which are corrected for holdings by non-residents of the euro area of money market paper and debt securities with a maturity of up to two years)¹ increased to 6.8%, from 6.2% in the period from July to September 2001. The annual growth rate of M3 stood at 7.4%, up from 6.9% in September, which was significantly above the ECB's medium-term reference value for M3 growth (see Chart 2).

Chart 2

M3 growth and the reference value

(annual percentage changes; seasonally and calendar effect adjusted)



Source: ECB.

Note: Series adjusted for non-euro area resident holdings of all negotiable instruments.

Having shown a decline in 2000 and early 2001, to levels well below the reference value (3.8% in the first quarter of 2001), the annual growth rate of M3 increased significantly in the course of this year. This acceleration of M3 following a period of subdued growth can to some extent be seen as a normalization process through which economic agents brought money holdings back into line with desired levels. In addition, the higher price level reached as a consequence of increases in energy and food prices observed in 2000 and early 2001 fuelled the demand for transaction balances in 2001.

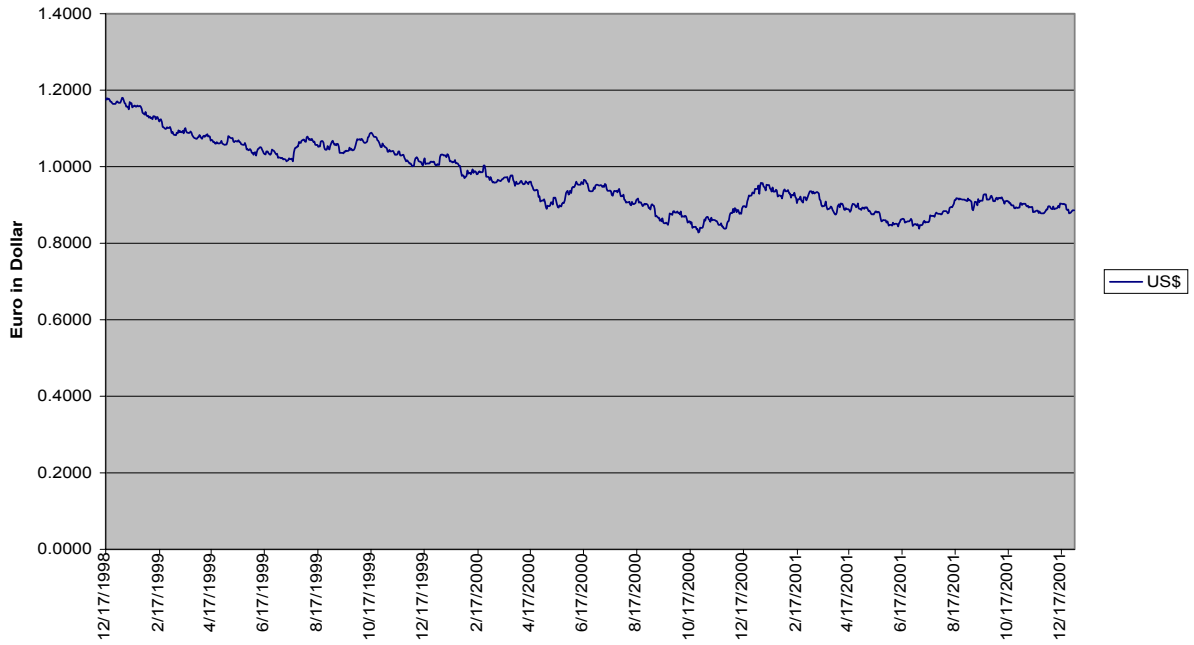
Sources: European Central Bank: Annual Report 1999 and Monthly Bulletins September 2000, December 2001

Graphs

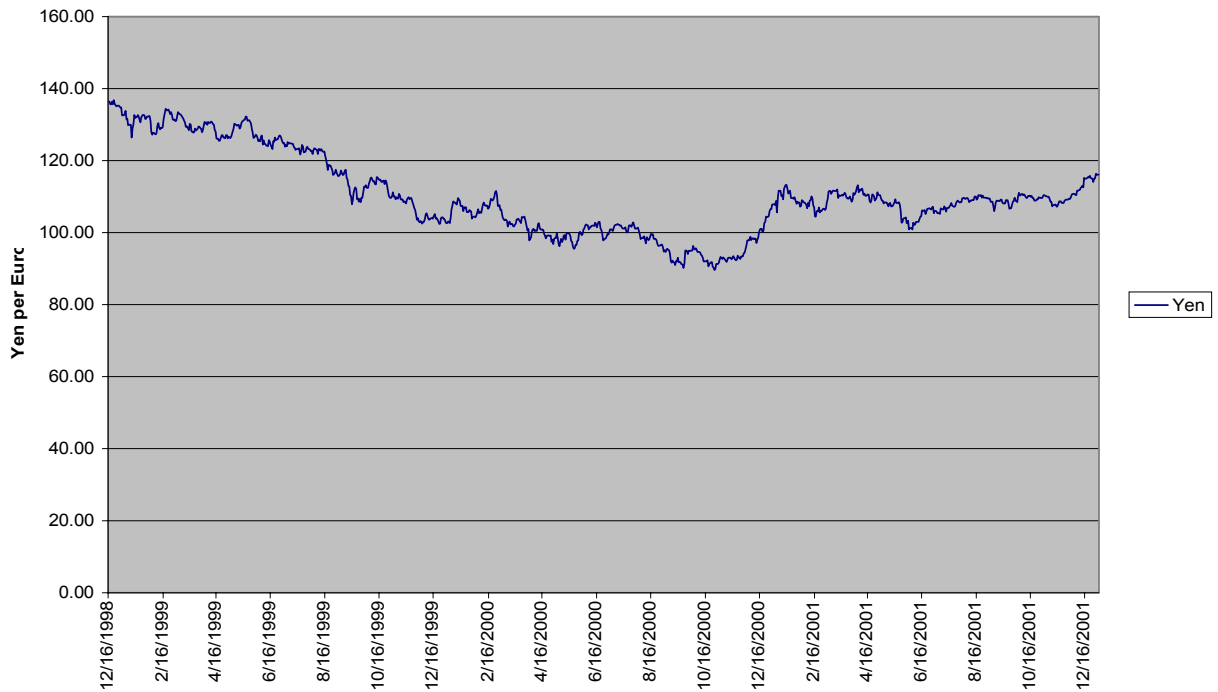
1. Euro in U.S. dollars, December 15, 1998 – December 31, 2001
2. Euro in Japanese Yen, December 15, 1998 – December 31, 2001
3. Euro in British pounds, December 15, 1998 – December 31, 2001
4. ECU in U.S. dollars, January 2, 1995 – December 31, 2001

Source for data for graphs:
Interbank rate
<http://www.oanda.com/convert/fxhistory>TM

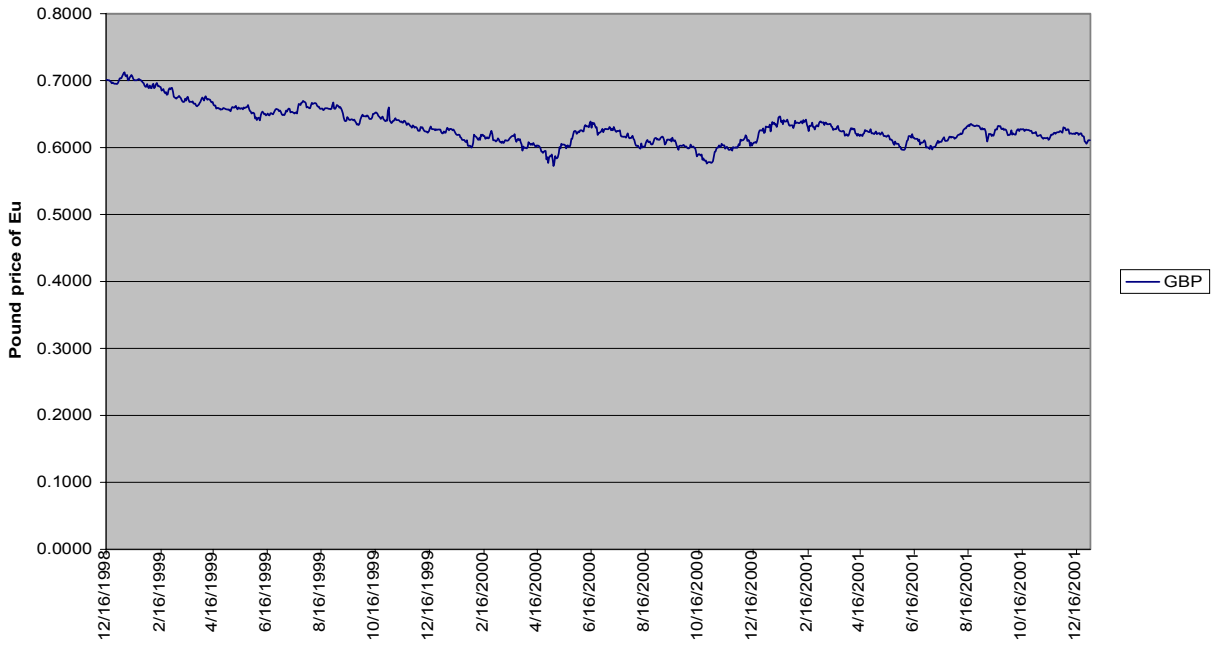
Graph 1: Dollar Value of Euro Dec 98-Dec 01



Graph 2: Yen Value of Euro Dec 98-Dec 01



Graph 3: Value of Euro in British Pounds



Graph 4: ECU in US \$ 1995-2001

