OECD Economics Department Working Papers No. 174

International Implications of European Economic and Monetary Union

Norbert Funke,

Mike Kennedy

https://dx.doi.org/10.1787/557406211626

OECD

General Distribution **OCDE/GD(97)61**

ECONOMICS DEPARTMENT
WORKING PAPERS
NO. 174

INTERNATIONAL IMPLICATIONS OF EUROPEAN ECONOMIC AND MONETARY UNION

by
Norbert Funke and Mike Kennedy

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

Paris

51752

INTERNATIONAL IMPLICATIONS OF EUROPEAN ECONOMIC AND MONETARY UNION

For a long time European Economic and Monetary Union was mainly considered an internal European issue and external consequences were largely ignored. In contrast to most previous analyses, this paper looks at a number of international implications of monetary union. It is argued that several factors could contribute to the euro becoming an international currency in the future and a competitor to the US dollar in this respect. The degree of uncertainty attached to this outcome, however, remains considerable and in any event the emergence of the euro as a major international currency is likely to take some time. Given the expected size of the euro-zone and the likelihood of the euro becoming an international currency, fiscal and monetary policies in the area are likely to have a significant impact on the macroeconomic environment in the rest of the world. An important issue is how will monetary union affect major bilateral exchange rate developments and their volatility. A number of factors that are likely to be important in this respect are identified, including the role of fiscal policy, the implementation and conduct of monetary policy as well as the role of structural reforms.

*****

Pendant longtemps, l'Union économique et monétaire européenne était surtout considérée comme une affaire interne à l'Europe, et les conséquences externes étaient largement ignorées. Contrairement à la plupart des analyses précédentes, cet article considère un certain nombre d'implications internationales de l'union monétaire. Il soutient que plusieurs facteurs pourraient contribuer à transformer l'euro en une monnaie internationale dans l'avenir et devenir ainsi le concurrent du dollar américain. Cependant, le degré d'incertitude entourant ce résultat demeure considérable et, en tout état de cause, l'émergence de l'euro en tant que monnaie internationale devrait prendre quelque temps. Étant donné la dimension prévue de la zone euro et la probabilité que l'euro devienne une monnaie internationale, les politiques budgétaires et monétaires dans ce domaine devraient influer de manière significative sur l'environnement macroéconomique du reste du monde. La manière dont l'union monétaire affectera les développements des principaux taux de change bilatéraux et leur volatilité demeure une question majeure. Un autre nombre de facteurs qui devraient être importants dans ce cadre sont identifiés, y compris le rôle de la politique budgétaire, la mise en oeuvre et la conduite de la politique monétaire ainsi que le rôle des réformes structurelles.

Table of Contents

INTERNATIONAL IMPLICATIONS OF EUROPEAN ECONOMIC AND MONETARY UNION

Norbert Funke and Mike Kennedy[1]

I. Introduction

1. The third and final stage of European Economic and Monetary Union (EMU)[2] is scheduled to begin on 1 January 1999. At that point, those countries participating are to adopt irrevocably fixed exchange rates for their currencies. While countries will have the option of using the new European money -- the euro -- as from 1999, by 2002 it is to replace completely domestic currencies in circulation in member countries and is to be used to denominate all financial and other business transactions. The adoption of the single currency, whether in steps or simultaneously in all countries, will represent a major regime shift. Some time in the new century, the euro could emerge as a major international currency with implications for other countries as well. This paper discusses a number of international implications of EMU.

2. The plan of the paper is as follows. The next section deals with what the planned EMU might look like in terms of the size of the economy and its financial markets. Against this background, the conditions under which the euro would become an international currency are discussed from the point of view of the traditional roles of an international money: store of value, unit of account and means of payment. Looked at from the perspective of the private sector, the store of value function relates to the denomination of assets and liabilities, the unit of account function reflects trade invoicing and quotation of merchandise, and the means of payment function mirrors the settlement of international transactions. While the private-sector demand for the euro is likely to be the most important factor determining its use internationally, its official use will also have a bearing. How financial markets might change under EMU and how those changes would increase the viability of the euro as an international currency are discussed in Section III. A number of macroeconomic policy issues are raised in the final section.

II. The euro as an international currency

Market size

3. The demand for the euro as an international currency will depend, in part, on the actual size of the domestic market; if it is large, the euro's substitutability and accordingly its attractiveness and general acceptability with potential non-resident holders could be enhanced. As there is some uncertainty about

---

1. The authors would like to thank Michael Feiner, Robert Ford, Jacques Pécha (Banque de France), Yannis Xenakis (European Commission) as well as the members of the Money and Finance Division for helpful comments on a previous draft. The excellent statistical assistance of Laure Meuro and Josette Rabesona is also acknowledged. The views expressed in this paper are those of the authors and are not necessarily shared by the OECD.

2. While EMU does stand for Economic and Monetary Union which includes Stages I and II, in this paper the focus is on monetary union.

the initial composition of EMU -- for example a number of countries do not yet meet all the criteria (Figure 1) -- three different assumptions are made about its potential size and these are compared to the economies of the United States and Japan (Table 1). The three assumptions are that: Germany, France, the Benelux countries, Austria and Ireland join (EU-7); a larger group joins that excludes the United Kingdom, Denmark, Greece and Sweden (EU-11); and all 15 join (EU-15). Based on a variety of current indicators, financial markets assign a high probability to the EU-7 forming the first wave (Figure 2)[3].

4. Looked at from this aggregative perspective, the single currency area will be larger than Japan in terms of population and GDP, even if only a small group of countries proceeds initially. In terms of GDP the EU-15, however, would encompass an economy which is roughly comparable in size to the United States, based on 1991 PPP rates, and about 12 per cent larger, based on December 1996 exchange rates. The average economic performance of the three blocs differed slightly during the 1990s. The average growth rate in the EU-11 and EU-15 area was just between that of Japan and the United States, and average inflation was 1 percentage point higher than in the United States. Once EMU is established, however, inflation could be lower assuming further progress on convergence to low inflation in the area. Finally, the average unemployment rate is significantly higher in each EU grouping than in either the United States or Japan. A large part of these differences is due to structural problems in EU labour markets.

5. A common characteristic shared by the United States, Japan and the future euro area is that all three blocs are not that exposed to trade. While individual EU countries are exposed to trade, with imports of goods-to-GDP ratios of up to 54 per cent, that trade is primarily intra-European (Table 2). The share of this trade, as a fraction of total national trade, amounts to over 60 per cent for the EU-15 countries. Furthermore, external trade relations of the EU-15 area based on current data, will be well diversified (Table 3).

6. As a result of the EMU area having a low import-to-GDP ratio, the reserve holdings of the European System of Central Banks (ESCB) will initially be relatively high compared with the current 2.6 reserve-to-import ratio of European countries and the 1.0 ratio for the United States (Table 4). In addition, after netting-out official holdings of European currencies, most of the reserves will be in dollars and the ESCB may want to rediversify its reserve assets. It is, however, unlikely that this "dollar-overhang" would pose any serious problems. If adjustments to reserve holdings are required, they can take place gradually over time so as to avoid exchange market disruptions. Also, the ESCB would not be under any obligation to reduce reserves once EMU is established. Indeed, it may be more convenient to hold more reserves initially until the euro is firmly established. If ESCB reserve holdings were to remain unchanged, they would still be below the fairly high Japanese reserve-to-import ratio.

7. The existence of a large financial market, in which euro-denominated assets are actively traded and domestic and foreign borrowers could raise sizeable volumes of funds at low costs, would enhance the euro's attractiveness as an international currency. With a large number of participating countries, the domestic euro market will be larger than the Japanese financial market. Based on available data, the size of the domestic financial market in the United States (domestic debt outstanding and stock market capitalisation) is larger than that of the euro area, independent of the number of participating countries (Table 5). The size and scope of the domestic EMU financial market will be importantly affected by the participation of the United Kingdom, which already has a thriving and competitive financial sector. In 1995, the United Kingdom's share in foreign exchange transactions was larger than the share of all other EU countries combined. In April 1995, approximately 30 per cent of spot, outright forward and foreign

3. See BIS (1996c), p. 29, for an analogous analysis. Ireland is not included because of a lack of data.

exchange swap transactions reported to the Bank of International Settlements (BIS) were carried out in the United Kingdom as opposed to 16 per cent in the United States and 10 per cent in Japan. In addition to the United Kingdom's important role in foreign exchange markets, London's stock exchange is the third largest such market in the world.

The demand for the euro

8. An international currency is one used by non-residents for purposes not necessarily related to domestic considerations, for example, to denominate the price of a commodity traded internationally. In addition to the dollar, the Deutschemark already performs that function to a degree. A key question is whether the euro will have a relatively greater international role than the Deutschemark has currently and whether the euro will in the future become a serious competitor to the dollar as an international currency. This section reviews this issue looking in turn at the main functions of international currencies, essentially concluding that the degree of uncertainty attached to the question is considerable. Still, several factors could contribute to the euro playing a larger international role in the future than the Deutschemark plays currently.

9. Probably the most important question relates to the likely role of the euro as a store of value and its use to denominate financial liabilities. European currencies are already quite important in this regard. Recent data on portfolio diversification of investment funds show the share of the major three EU currencies in bond holdings to be around 28 per cent, the dollar's share just over 33 per cent and the yen's around 13 per cent (Table 6). The existing importance of European currencies is also reflected in the composition of outstanding international assets reported to the BIS. About one third of this aggregate is denominated in EU currencies, while dollar assets represent slightly less than 40 per cent and yen assets less than 15 per cent (Crockett, 1996). Roughly comparable shares of currencies also prevail in new issues of international bonds (Table 7). However, in total funds raised, the dollar's share is above 50 per cent, in part as a result of the dollar's dominance in international bank loans.

10. There are likely to be portfolio effects. The elimination of exchange risk with the euro will lead to high levels of synchronisation of financial market prices and rates of return in EMU countries. This will reduce the possibility of diversification and international and domestic investors will have to re-evaluate the composition of their holdings. As a result, initially the demand for the euro would be less than the current sum of European currencies would suggest. However, two factors may increase the demand for euros in private portfolios. First, increased competition in European financial markets, as well as increasing financial market depth and liquidity, would increase the attractiveness of euro-assets. With broader bond markets in Europe, debt managers may also increase their use of the euro market. Financing risks might be reduced if a low inflation environment coupled with reasonable fiscal positions were accompanied by low volatility of interest rates. Second, with an economically stable EMU area, the euro would compete with the dollar as a safe-haven currency.

11. A second international aspect is the extent to which the euro might be used as a unit of account in trade. At the moment, the dollar is the only currency where its use exceeds its country of origin's weight in world trade by a wide margin (Table 8). The use of the Deutschemark is also somewhat greater than its weight. The potential for the euro to play a more important role than the Deutschemark as an international unit of account depends on several factors: the relative stability of the currency, the relative weight of the euro area in total world trade, and exporters' and importers' preferences. The clear mandate of the ESCB to achieve price stability and the relative importance of EU exports in world exports[4] will be

4. Excluding intra-EU trade, the EU-15 area is the world's main exporter, with a 19 per cent share of world exports compared to a 16 per cent share for the United States and a 12 per cent share for Japan.

important factors. The overall influence and determinants of exporters' and importers' preferences are more difficult to gauge. Preferences may depend on the nature of the exchange rate regime, the composition of trade, strategic decisions by trading partners, as well as the ability and desire to bear or cover the exchange rate risk. The example of the yen, which is used significantly less internationally than Japan's weight in world trade would suggest, shows that a large trade share does not automatically lead to a substantial internationalisation of a currency. Japan's case may reflect several factors. For a long time the Japanese regulatory and tax system has tended to discourage the use of the yen internationally. In addition, a substantial part of Japanese imports consists of primary products which have traditionally been denominated in US dollars. Furthermore, many Asian trading partners have in the past explicitly or implicitly linked their currencies to the US dollar and they may continue to favour denomination in that currency. However, Japanese trading patterns have changed since the mid-1980s and trading relations between Japan and other major Asian countries have increased considerably (Table 9). With a further strengthening of trade relations among Asian countries, and if exchange rate policies in other Asian countries increasingly attach a larger weight to the yen, the importance of the yen as a unit of account in trade could eventually rise.

12. Potentially the euro could play a significant role as a means of payment. The use of currencies as a means of payment is reflected in international currency markets. Daily average foreign exchange turnover on spot, forward and swap markets amounted to $1572 billion in April 1995[5] (Table 10). In these markets, the dollar is the most important currency: about 84 per cent of these transactions have a dollar counterpart as opposed to a 70 per cent share of EMS currencies and a 24 per cent share for the yen. In all financial centres but Frankfurt, the dollar is more actively traded than national currencies (Bénassy-Quéré, 1996). Because currencies of countries participating in EMU will vanish, initially consolidation will lead to a mechanical fall of approximately 15 percentage points in the share of the euro compared to the current share of European currencies (Crockett, 1996). However, given the size of the domestic markets and the historically low share of the use of the yen, the dollar and the euro could become the most frequently traded currency pair in the medium term. On the other hand, the international financial system could eventually develop towards a tripolar system. The recently proposed financial sector reform in Japan envisaged to be completed in 2001 is an important prerequisite for the increasing use of the yen internationally. Among other things, the aim of Japanese financial sector reform is to abolish barriers between banking and securities businesses, to deregulate stock-broker commissions and to abolish foreign exchange restrictions. A reform of the law governing the central bank to put it more in line with that of other large countries, including a strengthening of its independence as well as the implementation of more advanced settlement systems, would also support the development of financial markets in Japan.

13. The demand for euros by governments is likely to play a complementary role to the private demand for the euro as an international currency. To date, the dollar remains the major official reserve currency in the world. Although its dominance had declined by 1985, as European currencies became more firmly established, it has maintained its share since that time. The share of dollar holdings in total reserves has fallen from 79 per cent in the mid-1970s to 56 per cent (about 62 per cent including ECU-dollar swaps) in 1995[6]. This contrasts with a 20 per cent share of major European countries (largely the Deutschemark and to a lesser extent the pound sterling) and a 7 per cent share of the yen in 1995 (Table 11).

---

5. Total reported turnover, net of local inter-dealer double-counting.
6. Official ECU reserves are in the form of both claims on the private sector and the European Monetary Institute (EMI). Claims on the private sector are usually in the form of ECU deposits or bonds. ECU reserves that represent claims on the EMI are based on dollars and gold swaps (International Monetary Fund, 1996a).

14. The private demand for the euro as an international currency will be influenced by official use. The official demand depends in part on *de jure* and *de facto* exchange rate regimes (Table 12). Central and Eastern European countries have already adopted exchange rate regimes in which the Deutschemark plays an important role. Intensified private sector use could follow from closer trade links of these countries to the euro-area, which will most likely remain the predominant trading partner of Central and Eastern European countries. This would strengthen the euro's role as a currency of denomination but also feed back to the vehicle and store of value function.

15. Once EMU is established, the growth in the euro's role as an international currency is likely to be gradual. Market participants will want to wait until actual monetary and fiscal policies are in place and the stability of the euro is firmly established. Furthermore, inertia will likely work in favour of a continuation of the dominant role of the dollar, even after the initial phase of EMU, something also suggested by the gradual decline of the dollar's share in the past. Finally, a good part of the attractiveness of the euro as an international currency will depend on the development of its domestic financial markets, the subject of the next section.

III. Structural changes in financial markets

16. The advent of EMU will initiate significant structural change in financial markets not least because of the elimination of exchange risk between the participating countries. The extension of the single market to financial services will also have the effect of breaking down national barriers and setting in motion competitive forces that should greatly improve the efficiency of the financial markets. How efficient and liquid capital markets become as a result of this process will have a bearing on the international demand for euros.

Money, capital and stock markets

17. The existence of a single currency will facilitate comparability between markets throughout the euro area. Money market integration is to be supported by the implementation of a pan-European payments system TARGET (an acronym for Trans-european Automated Real-time Gross-settlement Express Transfer). Bond markets will broaden and deepen to the extent that the single currency increases the substitutability of bonds of participating countries and the liquidity of the bond market in general. Bond market depth would be enhanced if there were to be a further increase in the range of government bond maturities offered. In some countries, for example Germany, there is currently only a limited amount of issues at the short end and the very long end of the market. Finally, equity markets should benefit from the elimination of exchange risks which will make it easier to evaluate credit risk.

18. Some market segmentation, however, is likely to remain. Government debt will be re-assessed in the process of EMU with implications for the debt rating of individual governments. Currently governments can create their own currency. As a consequence, domestic government debt typically receives the highest credit rating within a country (Martin, 1996). When countries join EMU, they automatically lose their power to create money and the access they enjoy to a top credit rating will be affected. Standard and Poors has already indicated that each country would initially be awarded the rating applied to domestic government debt denominated in a foreign currency. Based on current ratings, only six of the EU-15 countries are likely to keep their triple A rating (Table 13). The others may face somewhat higher risk premia depending on market perceptions of their creditworthiness. Private sector estimates place the pure credit spreads up to +25 basis points over existing government bonds (JP Morgan, 1996). Overall spreads will then be influenced by market liquidity and supply factors as well as tax

considerations. In the past three years spreads between ten-year Deutschemark-denominated bonds of EU member countries (those whose current credit rating is lower than that in Germany) over 10-year German government bond yields have been on the order of 5 to 40 basis points (Figure 3). Evidence from Canadian provincial government bonds also suggests that spreads over central government bonds are in this range (Figure 4).

19. The move to a single currency will also affect competition in equity and derivatives markets within EMU. With a common currency and with it the elimination of exchange risk, competition between national equity markets should increase, as transaction costs will be low and performance will be more easily compared. The impact will be larger in futures markets. Europe's futures exchanges have benefited from the growth in interest rate contracts and stock index contracts. While the demand for stock index contracts may continue, the need for interest rate contracts in a number of currencies will vanish as EMU government bonds become closer substitutes. This may hit the position of smaller exchanges of countries which, in the past, have profited mainly from contracts denominated in their own currency (Table 14).

The financial services industry

20. EMU will most likely reinforce the ongoing restructuring process in the financial services industry. In an increasingly competitive environment, coupled with low economic growth and weak loan demand, bank profitability has declined in recent years. The single currency will put further pressure on banks. Apart from adjusting to the new payments system, revenues from foreign exchange trading between member currencies will disappear and interest rate margins will decline further. The magnitude of this effect will be bank-specific, depending on the size and nature of the business[7]. In the short run, the effects on banks in other large countries outside the EMU may remain limited. However, it is unclear to what degree, if at all, a restructured European banking market would increase international competition in the medium term.

21. These structural changes in financial markets could potentially have an impact on the positions of various European financial centres, depending on a number of unresolved issues. In the area of money markets, it still has not been decided whether non-participating countries will have direct access to the TARGET System. Countries (such as the United Kingdom) have raised a concern that they could face a competitive disadvantage if they did not participate in TARGET immediately, although large banks in these countries typically have European subsidiaries or correspondent arrangements with continental banks which provide a measure of access. Another unresolved issue is whether, and at what level, reserve requirements will be implemented. With zero or low interest-bearing reserve requirements, business could eventually shift back from offshore markets to the domestic euro market. At this time, the question of reserve requirements and their level remains open.

22. Within Europe, a crucial question is how the competitive position between financial markets would be affected by British non-participation. Even if the United Kingdom does not join, London is most likely to remain a major financial centre. Market participants expect that London's financial business will not be harmed to any great extent from non-participation. UK banking stocks continue to perform strongly (Figure 5). The enlargement of the London branches of some continental European banks is unlikely to be reversed. Due to the high qualification of staff, London should keep its dominant position in the high-tech area of financial services; however, it may lose in more traditional areas. Ultimately, the relative position of financial markets will depend on a number of interrelated micro factors, in particular the efficiency of the financial sector, trading costs and commissions for financial transactions,

---

7. Estimates by the Banca Commerciale Italiana (1995) indicate that profits on wholesale banking operations may fall by 10 to 15 per cent.

the regulatory and tax framework as well as macro factors such as inflation performance and national savings.

IV. The euro and EMU macroeconomic policy

23. Inflation, which is very low in virtually all OECD countries, should remain low in the euro area with an independent ESCB that will have price stability as its mandate. Further improvement in the macroeconomic environment could be facilitated by substantial fiscal consolidation over the medium term, the prospects of which are enhanced by the stability and growth pact agreed upon at the Dublin Summit[8]. Against the backdrop of this generally favourable policy framework, key issues can be divided into two areas:

a) the effect of the euro on EMU and EU macroeconomic policy; and

b) the effects of EMU macroeconomic policy management and adjustment on the rest of the world.

Effects of the euro on EMU and EU macroeconomic policy

24. The likelihood that the euro will play a significantly larger role as an international currency than individual country currencies do at present will probably have monetary policy implications. In its recent report on the single monetary policy in Stage III, the European Monetary Institute (EMI, 1997) narrowed down the list of potential monetary policy strategies to monetary targeting and direct inflation targeting, with the possibility of a framework which covers both strategies. Some recent studies (reviewed in Monticelli and Papi, 1996) have indicated that an area-wide stable money demand function may exist. However, if the international demand for euros were erratic, the currency component of EMU monetary aggregates would be more volatile, making them a less reliable guide to the domestic economy. Volatility is the key word here: as long as changes in the external demand for currencies were gradual or their size small relative to the total domestic demand for the currency, the adoption of monetary targeting in the EMU area should not destabilise macroeconomic management. However, it cannot be excluded that currently unpredictable changes in the financial markets and possible innovation in financial services and products following EMU will make the monetary aggregates less reliable as a guide for monetary policy. To the extent that this proves to be the case, there will be advantages in focusing directly on inflation rather than targeting monetary aggregates. In this framework, large exchange rate movements with significant effects on inflation would have to be taken into account in adjusting policy-controlled interest rates to achieve overall financial conditions which are appropriate for achieving ESCB inflation goals.

25. Challenges will arise in the case of economic shocks that affect EMU countries asymmetrically. ESCB monetary policy will not be able to deal with such shocks. However, within the framework of the recently agreed stability and growth pact, maintaining a balanced budget or surplus in normal times should provide some fiscal leeway for EMU countries individually to cope with shocks once such fiscal balance has been achieved. Nevertheless, there is a risk of additional increases in structural unemployment and other imbalances if, in the absence of further and more fundamental structural reforms, European labour and product markets remain insufficiently flexible to respond smoothly to large asymmetric shocks. All of

8. The arrangement presumes *inter alia* that countries which run excessive fiscal deficits will have to pay fines, unless they experience a natural disaster or fall in GDP of at least 2 per cent over a year. In cases where GDP has fallen between 0.75 per cent and 2 per cent, EU Finance Ministers will have discretion as to the imposition of penalties.

this heightens the need for these countries to pursue structural reform aimed at increasing the flexibility of their internal markets.

26. Much of this applies to those EU countries initially not in EMU but who will be keeping their currencies closely aligned with the euro. The new exchange rate mechanism (ERM II) is to be similar to the existing ERM with wide bands around a central parity rate against the euro, although participation will not be compulsory. Countries anticipating joining EMU relatively soon will have the option of adopting narrow bands. Intervention is to be automatic at the margin and unlimited as long as there is no conflict with the ESCB goal of price stability. Whether this arrangement will facilitate or complicate macroeconomic management will depend upon: the choice of the parity rate (whether it is a reasonable approximation to an equilibrium exchange rate); market perception of the progress all EU countries will make in improving their macroeconomic environment and reducing structural rigidities; and the types of shocks to which these countries and the EU area as a whole will be subjected.

The effects of EMU on the rest of the world

27. Because of the size of the EMU area, its fiscal and monetary policies are likely to have a significant impact on the macroeconomic environment in the rest of the world. Key transmission mechanisms from policies in the euro area to the rest of the world will work through exchange rate and interest rate developments which, in turn, will be influenced by the conduct of macroeconomic and structural policies in the euro area. Trade policy implications of a currency zone are not discussed in this paper (see for example Shigehara, 1991, on this topic).

28. The favourable inflation environment in all major OECD countries in the foreseeable future, suggests that inflation differentials will probably not play a significant role in the determination of the value of the euro against other major currencies over the medium term. Divergences in the stance of fiscal policy would have implications for the short- and medium-term path of the real exchange rate of the euro *vis-à-vis* the dollar and the yen. Two mechanisms which have different implications for the path of the euro are possible. Assuming a more significant reduction in EMU government dissaving than in the rest of the OECD area, not fully offset by private savings, the current account balance of the EMU area will tend toward a surplus and net foreign assets to rise. Initially, larger fiscal contraction in the euro area than in the rest of the OECD area could put some downward pressure on EMU interest rates and on the value of the euro. This downward pressure, by "crowding-in" investment and net exports, would support activity. Over time, however, as private sector activity picks up, the value of the euro would tend to strengthen as part of the equilibrating mechanism that lowers the current account surplus and slows the accumulation of net foreign assets. Eventually the share of net foreign assets in total wealth would stabilise at the higher real value of the euro. On the other hand, to the extent that larger fiscal consolidation in the euro area than elsewhere lowers risk and uncertainty, the value of the euro would initially tend to rise. In this case, assuming not much of a drop in the euro exchange rate *vis-à-vis* the currencies of EMU trading partners, the greater burden of adjustment would have to fall more on interest rates than in the first case, particularly longer-term interest rates, to stimulate domestic demand as well as on confidence effects.

29. The development of exchange rates and interest rates as well as their volatility will also be affected by market perceptions about the conduct of monetary policy in the EMU area and elsewhere. It will be important that the new EMU institutions minimise uncertainty which could potentially spill over to foreign exchange markets as well as money and capital markets. Uncertainty about monetary policy could arise from a number of sources including: different market perceptions of how ESCB's monetary policy is actually run; concerns about conflicting views within the decision-making bodies as to the appropriate monetary policy action; and the communication process of ESCB policy to the public. These effects could be mitigated if the new central bank quickly establishes and makes public its framework and

operating procedures for monetary policy. With respect to communication, emphasis should be placed on methods and strategies which would minimise the risk that market participants in the various countries would be confronted with conflicting signals from the monetary authorities. Some further uncertainty could also arise from fiscal policy. The impact of remaining fiscal divergences among countries of the euro area on exchange rate and interest rate differentials *vis-à-vis* the rest of the world will depend on the degree of financial market segmentation, the initial public debt level and on the perceived likelihood that EMU partner countries will ultimately have to assist member countries running the risk of default on their public debt issued in euros.

30. At this juncture, markets do not appear to expect major exchange and interest rate disruptions over the coming few years as a result of EMU. Since the early 1990s, the nominal ECU-dollar exchange rate has been fairly stable[9], fluctuating in a 0.7 to 0.9 trading range, while the yen appreciated against the ECU until mid-1995 and weakened thereafter. Exchange rate volatility was not particularly high in 1996 (Figure 6). Furthermore, bilateral ECU forward exchange rates do not point to any pronounced trend for the dollar-ECU rate for the period beyond 1999 and 2002 (Figure 7). However, forward interest rates do suggest a substantial nominal depreciation of the ECU *vis-à-vis* the yen, reflecting large interest rate differentials. Forward interest rates also point to a continued nominal appreciation of the Swiss franc, which could pose a serious problem for the Swiss economy if it were reflected in a real appreciation.

31. Bilateral exchange rates among the major three economies, however, could be more volatile than markets currently expect once EMU is in place. Since the United States, Japan and the EU as a whole all have relatively limited trade exposure and well-diversified trading patterns, all three may be willing to put little weight on bilateral exchange rate fluctuations when assessing inflation prospects, particularly as the cost of larger exchange rate volatility among them may as a result be fairly small. If so, EMU may lead to greater bilateral exchange rate volatility against the dollar and the yen than European countries have experienced in the past. In particular, the ESCB may put less weight on exchange rate developments than individual European countries that will join have done previously. However, increased bilateral exchange rate volatility of the euro *vis-à-vis* the dollar and the yen may have a more significant impact on small open economies which have explicitly or implicitly pegged their currencies to one of the major three currencies.

32. Still, bilateral exchange rate volatility among the major three currencies does not necessarily have to increase. The so-called "hard-core" currency countries collectively already have limited exposure to trade and current volatility is not that large. In addition, in the absence of an anti-inflation track record for the ESCB, financial markets may focus on exchange rate developments as a measure of the stance of monetary policy, which could lead to the ESCB authorities putting a larger weight on smoothing exchange rate developments in the conduct of monetary policy. Indeed, the exchange rate may initially be more important for monetary policy as it could take time before the authorities convince the market that they have identified one or a set of reliable domestic indicators to guide monetary policy. Consequently, at least for a time, the volatility of the euro-dollar and euro-yen exchange rates may decline, while the volatility of short-term as well as long-term interest rates may increase.

33. Over the medium term, on the other hand, once the track record of the ESCB has been established, and assuming governments in the three major areas pursue more stable macroeconomic policies than they have at times followed since the late 1960s, bilateral exchange rates among the three major economies could be more stable than they have been since generalised floating began in the early

9. In the conclusions of the European Council's meeting in Madrid in December 1995, it was clearly indicated that the ECU is to be changed at par into the euro unless otherwise specified in the financial contract. Some recent ECU bond issues already explicitly include such a clause.

1970s. More stable macroeconomic policy could also lead to smoother interest rate developments and reductions in remaining risk premia. However, much will depend on the ability of the EMU economy to adjust smoothly and relatively quickly to shocks. In this regard, it will be necessary for member countries to reduce relatively quickly structural rigidities in labour and product markets. If successful, less reliance would need to be put on exchange rate adjustment to respond to adverse events and more on the EMU internal market. If not, the international monetary system could be affected by calling into doubt the political will of EMU member governments to continue to follow stable monetary and fiscal policies. Confidence in the free trade system might also be weakened if such developments increased protectionist pressures.

TABLES AND FIGURES

Tables

Figures

Table 1. **Economic indicators: United States, Japan, European Union**

	Population (thousands)	GDP[a] 1991 PPP rates ($US billion)	GDP[a] December 1996 exchange rates ($US billion)	Average real GDP growth 1990-96 in per cent	Average inflation rate (GDP deflator) 1990-96 in per cent	Average unemployment rate 1990-96 in per cent	Public sector debt, per cent of GDP 1990-96[b]	Trade balance, per cent of GDP 1990-1994	Average gross national saving, per cent of GDP 1990-94
United States	263057[c]	7575	7575	2.0	2.7	6.3	61.9	-1.6	15.4
Japan	124960[d]	2571	4377	1.7	0.8	2.6	71.4	2.5	33.4
EU-7[e]	176806[d]	3647	4732	2.5	2.6	9.7	60.4	-0.7[h]	21.3
EU-11[f]	287254[g]	5818	6743	1.9	3.5	10.6	71.4	-0.8[h]	20.7
EU-15	369834[g]	7430	8504	1.8	3.6	10.2	68.9	-0.9[h]	19.3

a) 1996 projected. Total Germany from 1991 onwards.
b) General government gross financial liabilities as a percentage of nominal GDP.
c) 1995.
d) 1994.
e) Germany, France, Austria, Belgium, Luxembourg, Ireland and the Netherlands.
f) Current EU-15 members, except Denmark, Greece, Sweden and the United Kingdom.
g) 1993.
h) Excluding intra EU-trade.

Source: OECD Secretariat.

Table 2. **Indicators of exposure to trade: 1995**

	Imports of goods to GDP ratio	Foreign trade[a] to GDP ratio
	(In per cent)	
United States	10.2	18.3
Japan	6.6	15.2
Germany	19.2	40.8
France	17.3	36.0
Italy	19.0	40.5
United Kingdom	24.0	46.0
Canada	29.1	63.1
Austria	28.2	52.9
Belgium/Luxembourg	54.4	114.0
Denmark	25.3	53.6
Finland	23.6	56.0
Greece	24.2	34.5
Ireland	53.6	125.7
Netherlands	45.2	95.3
Portugal	32.5	55.1
Spain	20.6	37.1
Sweden	28.1	62.7
European Union[b]		
EU-7[c]	14.1	29.4
EU-11[d]	10.9	22.4
EU-15	8.7	17.5

a) Sum of exports and imports of goods.
b) After consolidation, excluding intra-EU trade. Projections for Greece and Sweden.
c) Germany, France, Austria, Belgium-Luxembourg, Ireland, Netherlands.
d) Current 15 EU members except Denmark, Greece, Sweden and the United Kingdom.

Source: OECD Secretariat.

Table 3. **Merchandise trade flows of EU-15 countries**[a]
(In per cent)

Country	Imports from	Exports to
United States	19.8	20.1
Japan	11.1	5.7
Central and Eastern Europe (including CIS)	11.7	12.1
Far East	19.2	17.7
Latin America	5.6	5.9
Other	32.6	38.5

a) 1994. Excluding intra-EU trade.

Source: OECD Secretariat.

Table 4. **Official reserves excluding gold**
(October 1996)

	Reserves in billions of $US	Imports[a] in billions of $US	Reserves/Imports (number of months)
United States	64.5	65.6	1.0
Japan	215.0	29.1	7.4
Germany	85.8	38.0	2.3
France	26.9	22.2	1.2
Italy	51.4	17.1	3.0
United Kingdom	40.7	23.6	1.7
Canada	19.9	14.2	1.4
Austria	22.6	6.2	3.7
Belgium-Luxembourg	17.8	12.9	1.4
Denmark	15.1	3.6	4.2
Finland	7.2	2.4	3.0
Greece	18.2	2.1	8.7
Ireland	10.3	2.9	3.5
Netherlands	28.3	14.1	2.0
Portugal	15.8	2.8	5.7
Spain	54.3	10.2	5.3
Sweden	25.2	5.5	4.6
European Union:			
EU-7[b]: total of above	191.7	96.3	2.0
EU-7 net[c]	136[d]	60.7	2.2
of which $US reserves[e]	126[d]	60.7	2.1
EU-11[f]: total of above	320.3	128.8	2.5
EU-11 net[c]	213[d]	64.2	3.3
of which $US reserves[e]	191[d]	64.2	3.0
EU-15: total of above	419.4	163.5	2.6
EU-15 net[c]	280[d]	63.8	4.4
of which $US reserves[e]	246[d]	63.8	3.9

a) Monthly average for 1996 (up to October/November).
b) Germany, France, Austria, Belgium-Luxembourg, Ireland, Netherlands.
c) After netting out reserves held in corresponding European currencies and excluding intra-EU trade. Estimates.
d) Estimate involves some degree of uncertainty.
e) Including estimated ECU-$ swaps.
f) EU-15 except the United Kingdom, Denmark, Greece and Sweden.

Source: OECD Secretariat.

Table 5. **Financial markets: 1995/96**

	Reported foreign exchange turnover		Capital markets		Stock markets		
	Daily average net turnover ($US billion)[a]	Share of aggregated reported transactions (per cent)	Domestic debt securities Amounts outstanding ($US billion)[b]	International debt securities Amounts outstanding ($US billion)[c]	Market capitalisation ($US billion)[d]	Market capitalisation as a per cent of GDP	Average amount traded per day ($US billion)[e]
United States	244.4	15.7	11292.7	434.7	5654.8	78.0	12.2 (TSV)
Japan	161.3	10.3	4862.0	203.6	3545.3	76.0	3.6 (TSV)
Germany	76.2	4.8	1891.2	145.6	577.4	23.9	2.4 (REV)
France	58.0	3.7	1280.5	195.6	500.0	31.8	2.9 (REV)
Italy[a]	23.2	1.5	1677.5	66.5	209.5	18.8	0.3 (TSV)
United Kingdom	463.8	29.5	649.4	333.2	1346.6	123.8	4.6 (REV)
Canada	29.8	1.9	518.3	182.8	366.3	64.3	0.6 (TSV)
Austria	n.a.	n.a.	146.5	63.8	32.5	13.9	0.1 (TSV)
Belgium	28.1	1.8	414.4	27.4	101.8	37.7	0.1 (TSV)
Denmark	30.5	1.9	293.2	34.1	57.7	32.9	0.1 (TSV)
Finland	5.3	0.3	91.1	54.4	44.1	35.1	0.1 (TSV)
Greece	3.3	0.2	98.4	21.2	16.5	11.7	0.0 (TSV)
Ireland	4.9	0.3	29.6	28.0	n.a.	n.a.	n.a.
Luxembourg	19.1	1.2	12.0	39.3	30.4	178.3	0.0 (TSV)
Netherlands	25.5	1.6	271.8	254.2	286.7	72.6	0.5 (REV)
Portugal	2.4	0.2	62.7	12.1	n.a.	n.a.	n.a.
Spain	18.3	1.2	329.9	27.6	150.9	26.4	0.2 (TSV)
Sweden	19.9	1.3	313.2	114.2	172.6	69.5	0.0 (TSV)
European Union: total of above							
EU-7[f]	211.8	13.5	4046.0	753.9	1528.8	43.1	n.a.
EU-11[g]	261.0	16.6	6207.2	914.5	1933.3	34.5	n.a.
EU-15	778.5	49.5	7561.4	1417.2	3526.7	49.4	n.a.

For notes to table see over.

Notes to Table 5.

a) Spot, outright, forward and foreign exchange swap transactions. Net of local inter-dealer double counting, April 1995.

b) Bonds, medium-term notes, commercial paper, treasury bills and other short-term notes. Issues by residents and (for notes) non-residents in local currency in local markets. September 1996.

c) International bonds and euronotes. Issues by residents in foreign markets and in foreign currency in the local market; for euronotes excluding local currency issues in foreign markets. December 1996.

d) Market capitalisation of shares of domestic companies. In most cases data refer to the major stock exchange only. Data include convertibles in the United States and investment funds in the United Kingdom. End-1995.

e) Stock exchanges use different definitions and calculation methods to compile turnover statistics. The Trading System View (TSV) counts as turnover only those transactions which pass through their trading systems or which take place on the exchange's trading floor. The Regulated Environment View (REV) includes all transactions subject to supervision by the market authority.

f) Germany, France, Austria, Belgium, Luxembourg, Ireland, the Netherlands. Before consolidation.

g) Current EU-15 members, except Denmark, Greece, Sweden and the United Kingdom. Before consolidation.

Source: BIS, FIBV, OECD Secretariat.

Table 6. **Portfolio diversification of investment funds in January 1997 (in per cent)**[a]

	Simple average	Maximum	Minimum	Standard deviation[b]
Equity holdings by area				
United States	32.4	40	25	4.9
Japan	21.5	30	15	5.6
European countries	34.2	45	26	6.1
of which[c]:				
Germany	6.7	12	2	2.9
France	5.9	13	2	3.0
United Kingdom	9.3	17	5	3.5
Other European	12.3	18	0	5.4
Other	9.3	14	5	2.9
Bond holdings in:				
Dollars	33.4	45	21	7.9
Yen	12.8	20	0	6.2
Deutschemark	17.0	28	9	6.0
French francs	5.1	14	0	5.0
Sterling	6.0	9	2	2.1
Other	25.7	41	2	10.5

a) Figures are based on the *Economist*'s poll of ten fund managers (*The Economist*, 25 January 1997, p. 74).
b) Percentage points.
c) The maximum and minimum figures refer to individual funds and thus do not add up to the maximum and minimum figures reported for European countries, which are derived from the sum of shares of all ten contributors.

Source: The Economist, OECD Secretariat.

Table 7. **International capital markets**

Total funds raised[a]

	1975	1980	1985	1990	1995	1996
Total issues in						
US dollar equivalent: ($US billion)	40.6	116.5	259.8	361.4	841.3	1058.6
Shares of selected currencies:						
US dollar	74.3	76.2	68.8	44.6	56.0	54.4
Japanese yen	0.2	1.6	7.1	9.0	10.0	7.5
Deutschemark	9.2	8.5	4.7	7.2	10.6	10.9
Pound sterling	0.4	1.9	3.5	11.9	6.9	8.3
French franc	0.9	1.6	0.6	3.0	2.3	5.9
ECU	-	0.0	3.7	7.8	2.5	0.5

a) Total funds include international bond issues, medium and long-term syndicated bank loans and other debt facilities.

International bonds[a]

	1975	1980	1985	1990	1995	1996
Total issues in						
US dollar equivalent: ($US billion)	19.9	38.3	167.8	229.9	467.3	710.6
Shares of selected currencies:						
US dollar	51.2	42.7	60.9	34.8	37.8	43.5
Japanese yen	0.4	4.8	7.2	13.4	17.7	11.1
Deutschemark	16.3	21.9	6.8	8.0	15.6	14.1
Pound sterling	0.2	3.0	4.2	9.2	4.6	7.3
French franc	1.8	3.0	0.9	4.2	2.7	6.5
ECU	-	0.0	4.3	7.8	1.5	0.6

a) International bonds include gross public and private offerings of euro-bond issues and foreign bond issues.

Source: OECD Secretariat.

Table 8. **Denomination of international trade**
Shares of the major currencies in denominating international trade

	1980		1992	
	Share of world exports denominated in: (per cent)	Coefficient of internationalisation[a]	Share of world exports denominated in: (per cent)	Coefficient of internationalisation[a]
US dollar	56	4.5	48	3.6
Five European currencies[b]	31	1.0	31	1.0
Of which: Deutschemark	14	1.4	16	1.4
Yen	2	0.3	5	0.6

a) The coefficient of internationalisation is defined as the ratio of the share of world exports denominated in a particular currency to the share of world exports accounted for by the country issuing that currency. A ratio greater than 1 indicates a situation in which the use of the currency exceeds the weight of the country issuing that currency in world trade. The coefficient of internationalisation of five European countries has been derived using the simple sum of exports of these countries.

b) Includes the following currencies: DM, FF, Lira, £, and the Guilder.

Source: Bénassy-Quéré (1996), Ilzkovitz (1996), OECD Secretariat.

Table 9. **Structure of foreign trade of the three major OECD regions**
(Per cent of total)

	1985			1994		
	United States	Japan	Four major European countries	United States[a]	Japan	Four major European countries
By product						
Exports						
Capital goods	34.7	22.4	22.0	31.5	29.4	23.0
Consumer goods	25.1	49.9	30.6	30.2	46.6	33.7
Other	40.3	27.7	47.3	38.4	24.0	43.3
Imports						
Capital goods	14.9	12.1	16.9	19.8	13.0	18.3
Consumer goods	46.8	13.7	25.5	47.0	28.2	33.3
Other	38.3	74.3	57.6	33.2	58.8	48.3
By area						
Exports to:						
United States	--	37.6	11.3	--	30.0	8.5
Japan	9.2	--	1.4	9.6	--	2.4
4 major European countries	15.1	8.5	--	13.5	9.9	--
Asian countries [b]	12.8	24.8	4.5	17.9	39.0	7.2
Imports from:						
United States	--	31.8	9.2	--	26.7	8.5
Japan	24.0	--	4.7	20.9	--	5.3
4 major European countries	17.1	10.8	--	14.2	13.6	--
Asian countries [b]	17.8	25.7	4.4	25.3	37.1	8.4

Note: Due to rounding, the sum of the components may not add up to totals.

a) 1993 figures.

b) Includes China, Chinese Taipei, Hong Kong, India, Indonesia, Korea, Malaysia, Philippines, Singapore and Thailand.

Source: OECD Economic Outlook, No. 60, p. 27.

Table 10. **Foreign exchange turnover**[a]

(as of April 1995)

	$US billion	Per cent
US dollar	1313.4	83.6
Yen	371.4	23.6
EMS currencies	1098.8	69.9
of which:		
DM	583.8	37.1
FF	127.2	8.1
£	139.7	8.9
ECU	36.2	2.3
other EMS	211.9	13.5
Other	359.9	22.9
Total[b]	1571.8	200.0

a) Daily averages, spot, outright forward and foreign exchange swap transactions.
b) As two currencies are involved in each transaction, the sum of transactions in individual currencies comes to twice total reported turnover.

Source: BIS (1996), *Central Bank Survey of Foreign Exchange*.

Table 11. **Official holdings of foreign exchange**[a]

	1975	1980	1985	1990	1995
All countries					
Total official holdings ($US bn)	162.4	378.2	382.6	844.8	1323.9
Shares of currencies (in per cent)					
US dollar	79.4	62.4	55.3	50.3	56.4
Japanese yen	0.5	2.6	7.3	8.2	7.1
European currencies[b]	13.6	15.7	20.4	25.2	20.2
Pound sterling	3.9	1.7	2.7	3.2	3.4
Deutschemark	6.3	10.4	13.9	17.4	13.7
French franc	1.2	0.9	0.8	2.3	1.8
Swiss franc	1.6	2.0	2.1	1.3	0.9
Dutch guilder	0.6	0.7	0.9	1.0	0.4
ECUs	..	13.9	11.6	9.6	6.5
Unspecified currencies	7.3	5.4	5.4	6.7	9.7

a) End of year. The table includes ECUs as a separate currency after 1979. If the dollar-swap component of ECUs liabilities of the European Monetary Institute is classified as dollars, the US dollar share amounts to 61.5 per cent in 1995.
b) Deutschemark, French franc, Pound sterling, Dutch guilder, Swiss franc.

Source: IMF, *Annual Report*, various issues.

Table 12. **Currency pegs**

Classification Status[a]	1980	1985	1990	1995
Currency pegged to				
US dollar	39	31	25	23
French franc	14	14	14	14
Other currency peg	4	5	5	7
SDR	15	12	6	3
Other currency composite[b]	22	32	35	20
Adjusted according to a set of indicators[c]	4	5	3	3
Co-operative exchange arrangements[d]	8	8	9	10
Flexibility limited *vis-à-vis* a single currency[e]	-	5	4	4
Managed floating	-	21	23	39
Independently floating	-	15	25	56
Other[f]	34	-	-	-
Total	141	149	154	179

a) For members with dual or multiple exchange markets, the arrangement shown is that in the major market.
b) Comprises currencies which are pegged to various "baskets" of currencies of the members own choice, as distinct from the SDR basket.
c) Includes exchange arrangements under which the exchange rate is adjusted at relatively frequent intervals, on the basis of indicators determined by respective member countries.
d) Refers to the co-operative arrangement maintained under the European Monetary System.
e) Exchange rates of all currencies have shown limited flexibility in terms of the US dollar.
f) For 1980 this category includes all currencies of countries under the headings of "Flexibility Limited *vis-à-vis* a Single Currency", "Managed floating" and "Independently floating".

Source: "Exchange Rate Arrangements", *IMF International Financial Statistics*, various issues.

Table 13. **Sovereign credit ratings on foreign currency issues**

(in descending order of credit rating)

Country	Credit rating
Highest quality	
Austria	AAA
France	AAA
Germany	AAA
Luxembourg	AAA
Netherlands	AAA
United Kingdom	AAA
High quality	
Belgium	AA+
Denmark	AA+
Sweden	AA+
Ireland	AA
Italy	AA
Spain	AA
Finland	AA-
Portugal	AA-
Adequate payment capacity	
Greece	BBB-

Source: Standard and Poors, October 1996.

Table 14. **Exchange traded interest rate derivatives**[a]

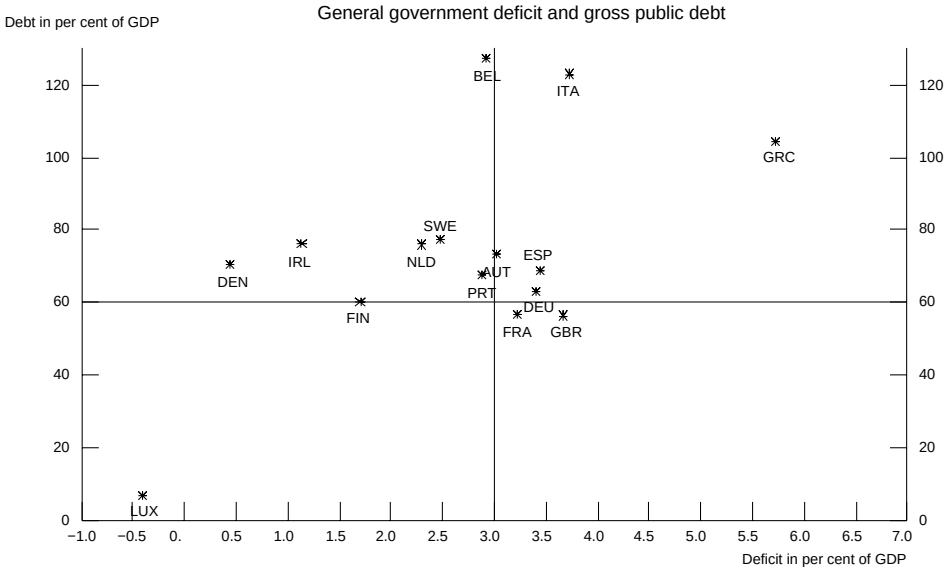
	Notional amounts outstanding ($US billion)	Share of: (in per cent) $US	DM	Yen	Other currencies[b]
United States	4056.8	87.6	3.7	4.8	3.9
Japan	4211.5	31.2	7.2	59.6	2.0
Germany	199.8	10.1	77.0	2.9	10.0
France	1307.7	38.1	11.2	9.4	41.3
Italy	8.7	3.7	6.1	0.3	89.9
United Kingdom	4074.0	36.6	17.0	15.2	31.2
Canada	357.6	74.6	0.1	0.2	25.1
Austria	7.9	8.4	49.3	0.0	42.3
Belgium	60.1	32.2	14.9	2.8	50.1
Denmark	15.1	13.3	10.8	0.2	75.7
Finland	13.1	49.0	14.3	0.4	36.3
Greece	7.3	81.1	18.0	0.0	0.9
Luxembourg	14.1	36.0	34.6	0.4	29.1
Netherlands	31.4	20.5	64.5	0.1	14.9
Spain	32.1	2.2	1.9	0.1	95.8
Sweden	142.5	3.6	1.5	0.0	94.9

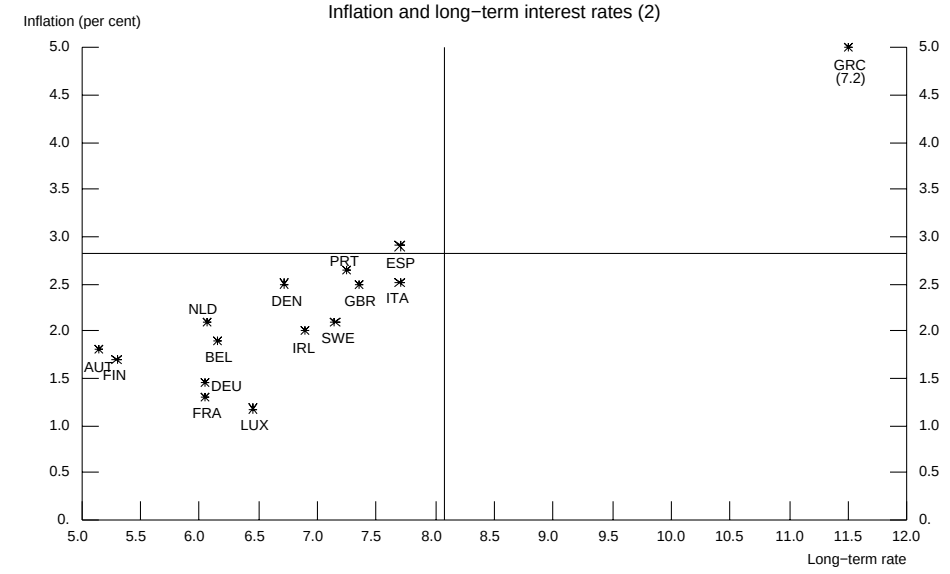
a) End-March 1995.
b) For all countries, except the United States, Japan and Germany, a large part of the "other currencies" is in the domestic currency.

Source: BIS, OECD Secretariat.

Figure 1. **Economic indicators and the Maastricht convergence criteria (1)**

(Excluding the exchange rate criterion)

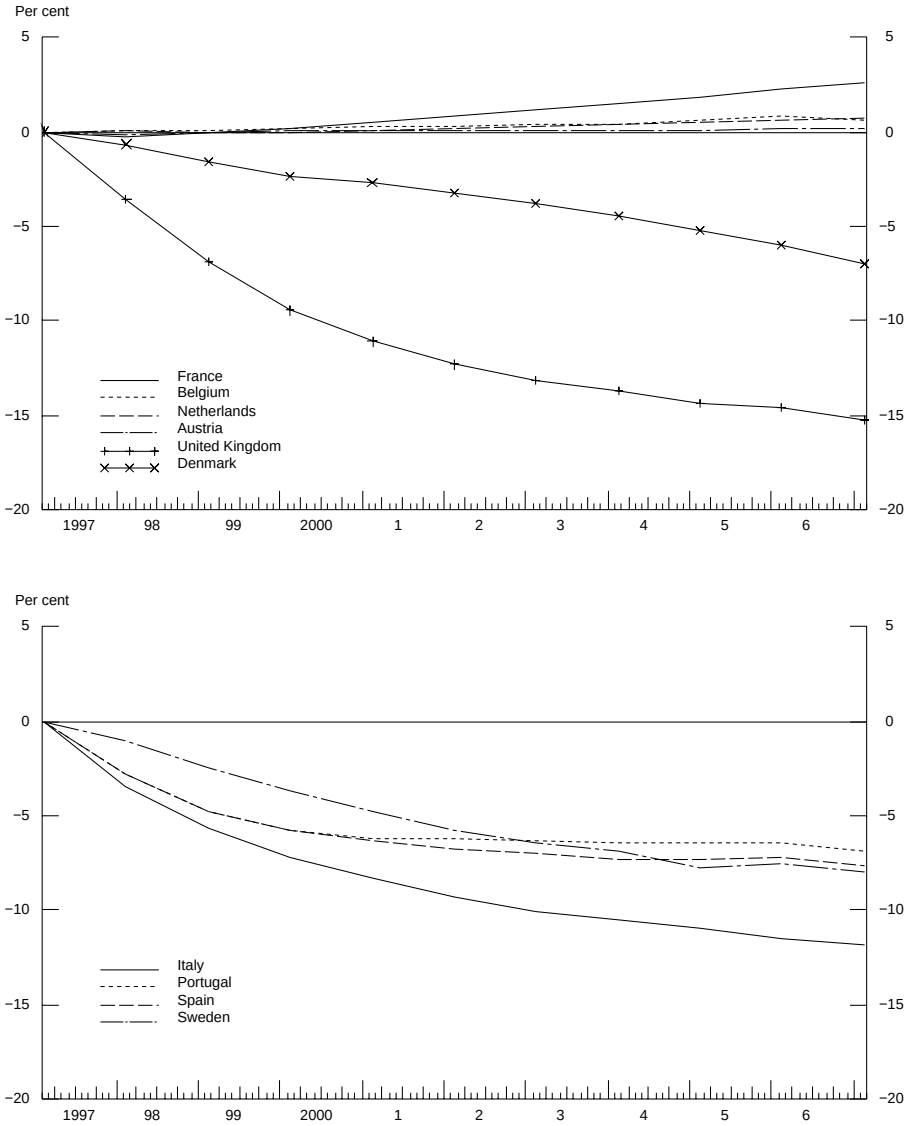




1. Based on OECD 1997 projections. Fiscal data for Luxembourg as of 1995. Countries in the lower left cells are projected to fulfill the criteria. However, the inflation projection refers to the annual consumption deflator.
2. The three countries with the lowest projected inflation rates are: Germany, France and Luxembourg.

Source: OECD Secretariat.

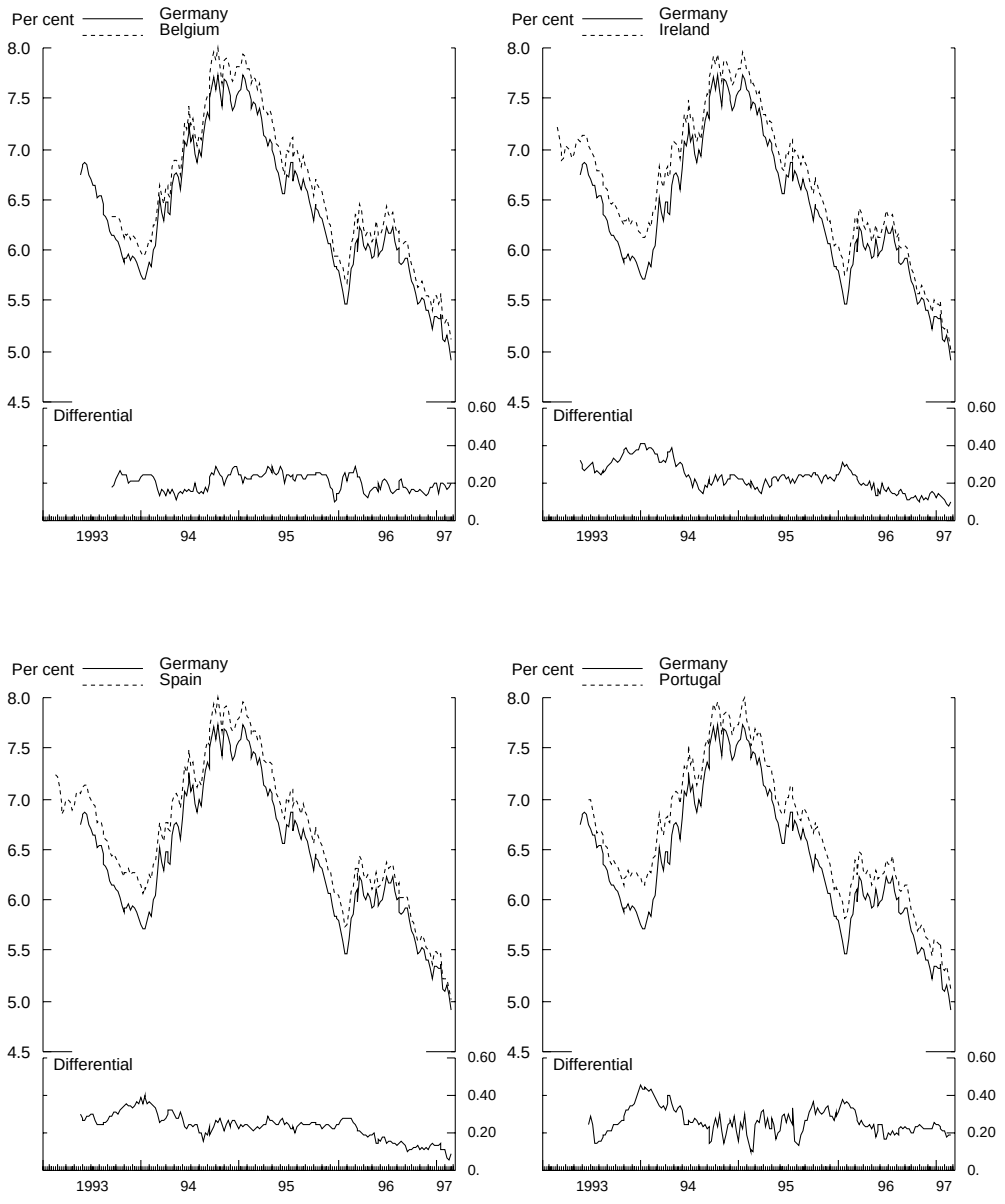
Figure 2. **Expected exchange rate developments against the Deutschemark (1)**



1. As of mid February 1997. Calculations are based on forward exchange rates which are derived from implicit one−year forward interest rates of interest rate swap yields. A positive (negative) number indicates an expected nominal appreciation (depreciation) of the respective currency.

Sources: OECD Secretariat and Datastream.

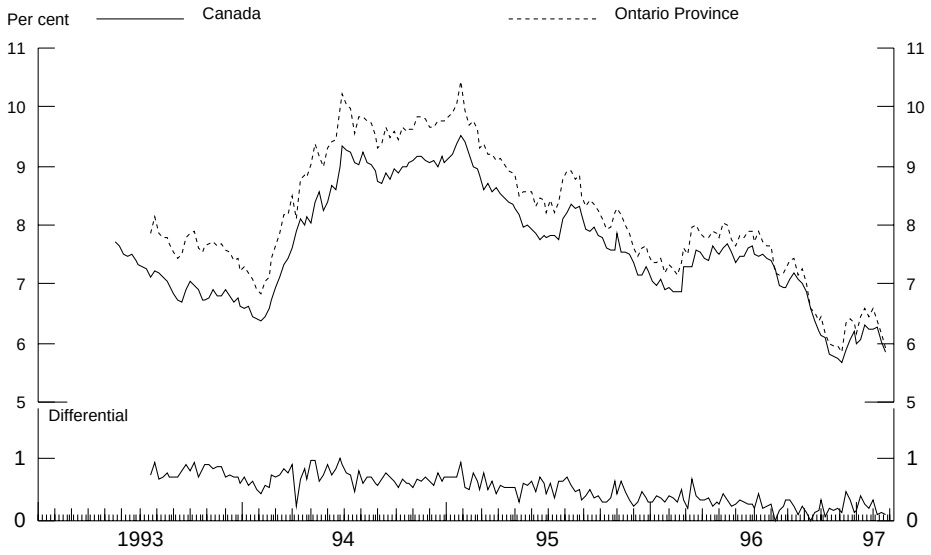
Figure 3. **Interest rate spreads: foreign bond issues in German marks and German government bond yields compared (10 year issues 1993−2003)**



Sources: OECD Secretariat and Datastream.

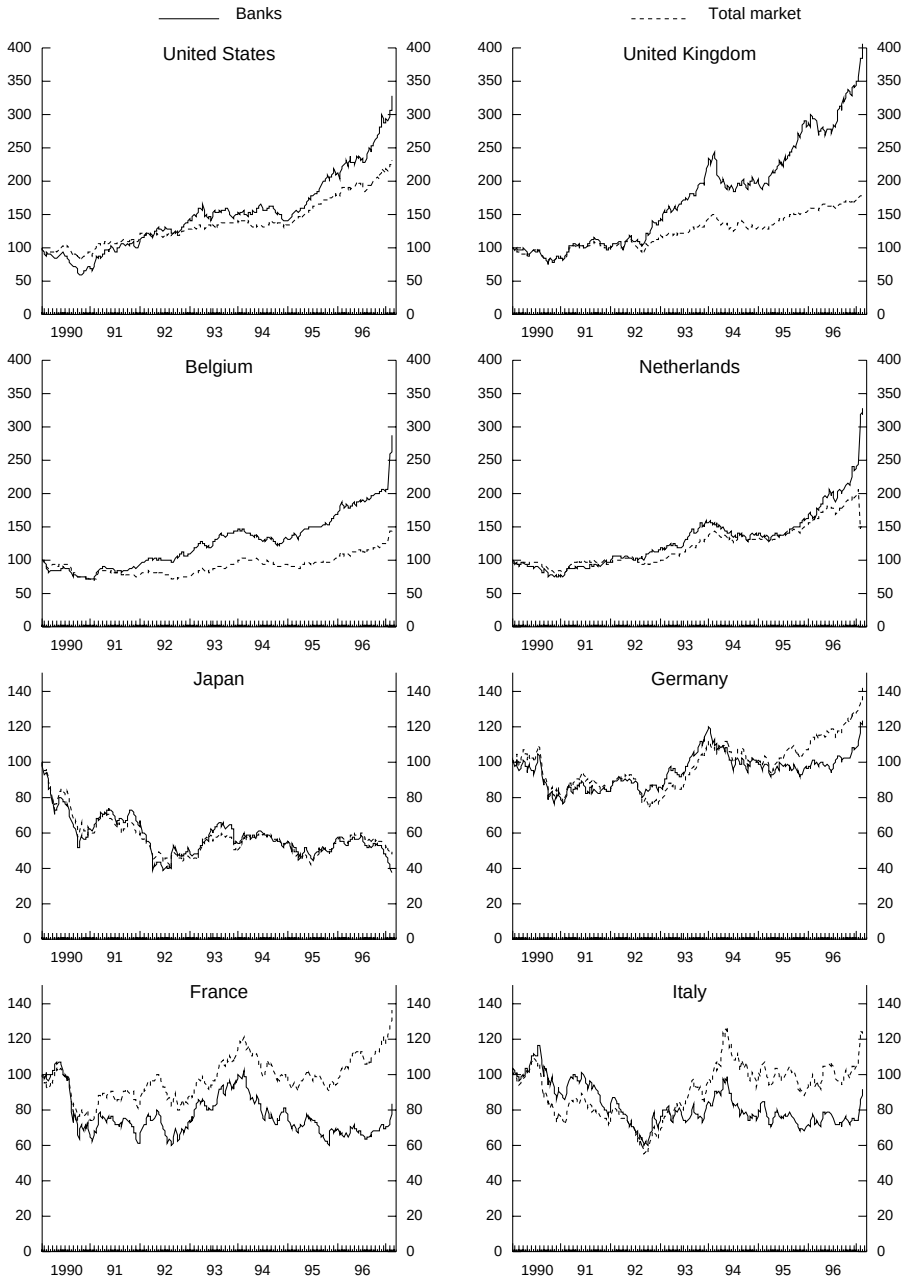
Figure 4. **Spread between a Canadian government bond and a bond issued by the Ontario Province**

(10−year issues 1993−2003)



Sources: OECD Secretariat and Datastream.

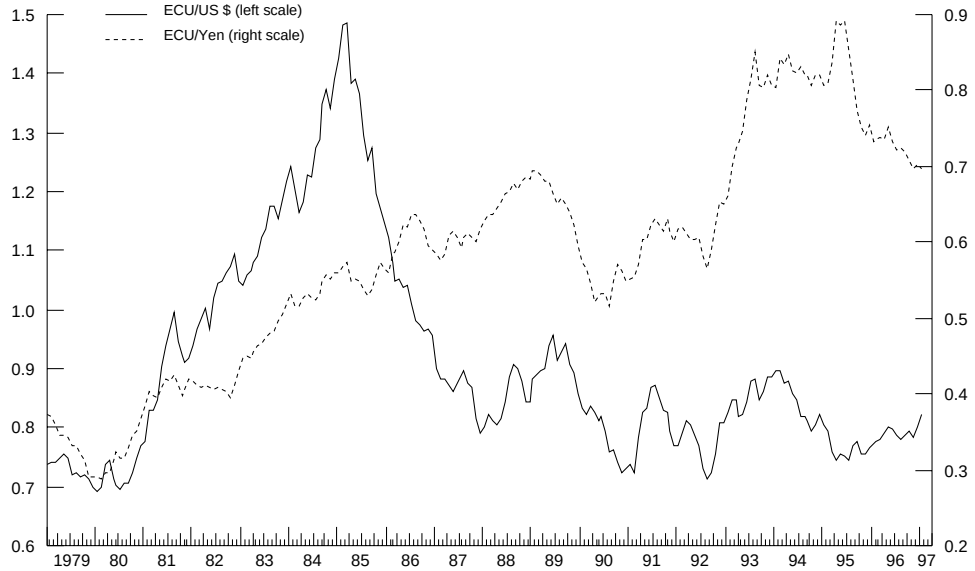
Figure 5. **Stock market performance (1)**
(January 1990=100)



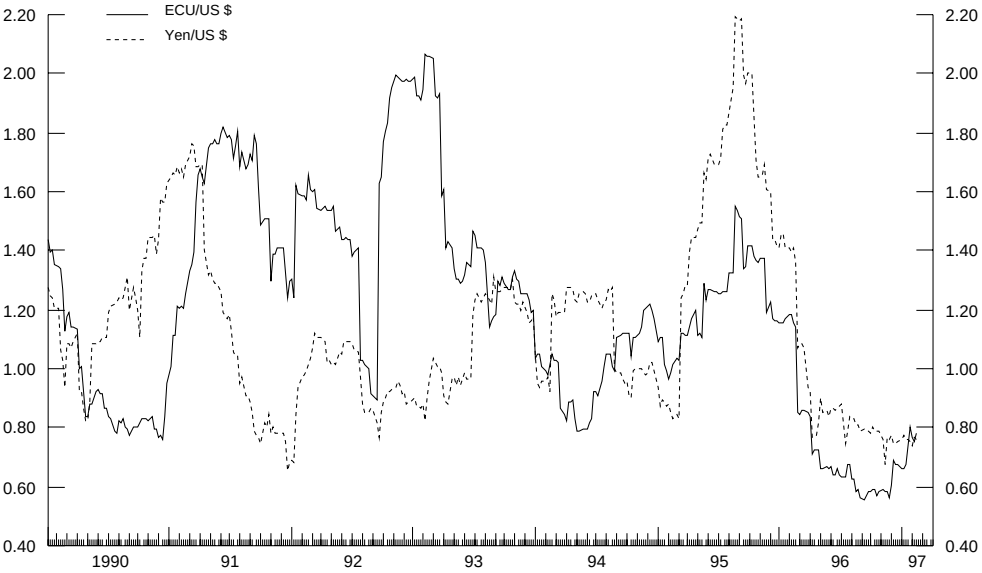
1. Datastream market indices.

Figure 6. **Exchange rates**

Monthly developments



Volatility (1)

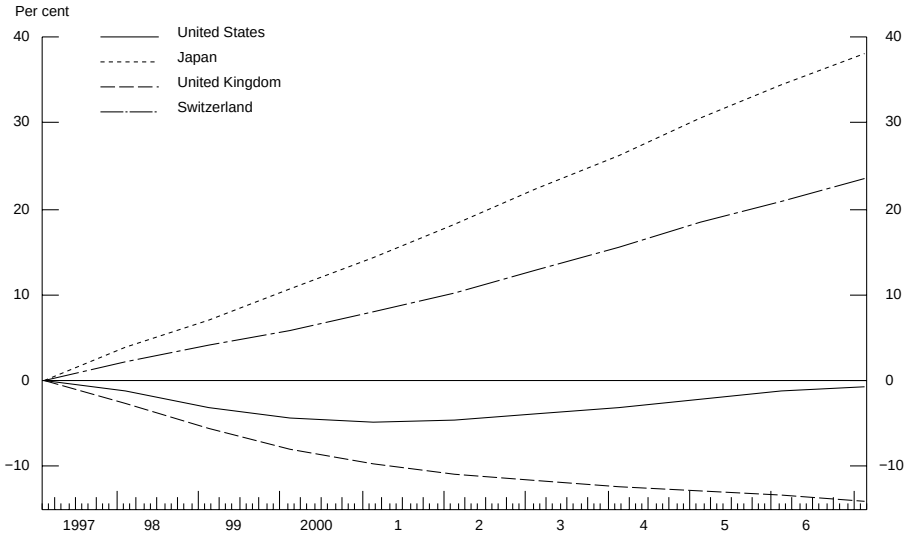


1. Weekly data. Standard deviation over a moving sample of 26 weeks, log first difference, in per cent.

Source : OECD Secretariat.

J.R

Figure 7. **Expected exchange rate developments against the ECU (1)**



1. As of mid February 1997. Calculations are based on forward exchange rates which are derived from implicit one−year forward interest rates of interest rate swap yields. A positive (negative) number indicates an expected nominal appreciation (depreciation) of the respective currency.

Sources: OECD Secretariat and Datastream.

BIBLIOGRAPHY

AGELL, Jonas, Lars CALMFORS and Gunnar JONSSON (1996), " Fiscal policy when monetary policy is tied to the mast", *European Economic Review*, Vol. 40, No. 7, August, pp. 1413-1440.

ALESINA, Alberto (1996), "Budget deficits and budget institutions", National Bureau of Economic Research, *Working Paper* No. 5556, May.

ARMSTRONG, Harvey W., V.N. BALASUBRAMANYAM and Mohammed A. SALISU (1996), "Domestic savings, intra-national and intra-European Union capital flows, 1971-1991", *European Economic Review*, Vol. 40, No. 6, June, pp. 1229-1235.

ARTIS, Michael (1996), "Alternative transitions to EMU", *The Economic Journal*, Vol. 106, No. 437, pp. 1005-1015.

BANCA COMMERCIALE ITALIANA (1995), *Monetary Trends*, No. 53, October.

BANK FOR INTERNATIONAL SETTLEMENTS (BIS) (1996a), *Central Bank Survey of Foreign Exchange and Derivatives Market Activity*, Basle.

BANK FOR INTERNATIONAL SETTLEMENTS (1996b), *66th Annual Report*, June.

BANK FOR INTERNATIONAL SETTLEMENTS (1996c), *International Banking and Financial Market Developments*, August.

BANK OF ENGLAND (1996), *Quarterly Bulletin*, Vol. 36. No. 3.

BARRAN, Fernando, Virginie COUDERT and Benoit MOJON (1996), "L'union Européene est-elle une zone homogène pour la politique monétaire"? *Economie Internationale*, No. 65, pp. 93-122.

BÉNASSY-QUÉRÉ, Agnès (1996), "Potentialities and opportunities of the euro as an international currency", European Commission, Directorate-General for Economic and Social Affairs, *Economic Papers*, No. 115, July.

COMMISSION OF THE EUROPEAN COMMUNITIES (EC Commission) (1990), "One market, one money: An evaluation of the potential benefits and costs of forming an economic and monetary union", *European Economy*, No. 44, October.

COMMISSION OF THE EUROPEAN COMMUNITIES (EC Commission) (1994), "Impact of EMU on International Co-ordination", Document No. II/571/94 - EN.

COTTARELLI, Carlo and Angeliki KOURELIS (1994), "Financial structure, bank lending rates, and the transmission mechanism of monetary policy", International Monetary Fund, *Staff Papers*, Vol. 41, No. 4, October, pp. 587-623.

CRAIG, R. Sean (1994), "Who will join EMU? Impact of the Maastricht convergence criteria on economic policy choice and performance", Board of Governors of the Federal Reserve System, *International Finance Discussion Papers*, No. 480.

CROCKETT, Andrew (1996), "The Euro, the Yen and the Dollar: Three International Reserve Currencies? Towards a New International Monetary System", Paper presented for the Conference "Organisation du Marché Monétaire Européen, Paris, 19 November 1996.

DE GRAUWE, Paul (1996), "Forward interest rates as predictors of EMU", Centre for Economic Policy Research, *Discussion Paper*, No. 1395.

DEUTSCHE BUNDESBANK (1996), *Monthly Report*, January.

EDISON, Hali J. and Linda S. KOLE (1995), "European monetary arrangements: Implications for the dollar, exchange rate variability and credibility", *European Financial Management*, Vol. 1, No. 1, pp. 61-86.

EICHENGREEN, Barry and Jeffrey A. FRANKEL (1996), "On the SDR: reserve currencies and the future of the international monetary system", University of California at Berkeley, *Working Paper*, No. C. 96-68, May.

EUROPEAN MONETARY INSTITUTE (1996a), "Recent developments in the use of the private ECU", *Statistical Survey*, March.

EUROPEAN MONETARY INSTITUTE (1996b), *Annual Report 1995*, Frankfurt.

EUROPEAN MONETARY INSTITUTE (1997), *The Single Monetary Policy in Stage Three. Specification of the Operational Framework*, January, Frankfurt.

FÉDERATION INTERNATIONALE DES BOURSES DES VALEURS (FIBV) (1996): *Annual Report and Statistics 1995*, Paris.

GOODHART, Charles A.E. (1996), "The transition to EMU", *Scottish Journal of Political Economy*, Vol. 43, No. 3, August, pp. 241-257.

HARTMANN, Phillipp (1996), "The future of the euro as an international currency: A transactions perspective", *Special Paper Series*, No. 91, LSE Financial Markets Group, November.

HOELLER, Peter, Marie-Odile LOUPPE and Patrice VERGRIETE (1996), "Fiscal relations within the European Union, *OECD Economics Department Working Papers*, No. 163.

ILZKOVITZ, Fabienne (1996), "Prospects for the internationalisation of the Euro", European Commission, DGII, Economic and Financial Affairs, Document II/362/96-EN.

INTERNATIONAL MONETARY FUND (1996a), *Annual Report 1996*, Washington.

INTERNATIONAL MONETARY FUND (1996b), *World Economic Outlook*.

JOHNSON, Karen H. (1994), "International dimensions of European Monetary Union: Implications for the dollar", Board of Governors of the Federal Reserve System, *International Finance Discussion Papers*, No. 469.

JP MORGAN (1996), "*EMU: Impact and Opportunity*", November.

LEAHY, Michael P. (1994), "The dollar as an official reserve currency under EMU", Board of Governors of the Federal Reserve System, *International Finance Discussion Papers*, No. 474.

MARTIN, Peter C. (1996), "New credit era dawns for Europe", *Financial Times*, 27 October, p. 22.

MASSON, Paul (1996), "Fiscal dimensions of EMU", *The Economic Journal*, Vol. 106, No. 437, pp. 996-1004.

MCKINNON, Ronald (1996), "Alternative exchange rate regimes, the EMU, and Sweden: the fiscal constraints", Swedish Government Commission on EMU, seminar: 6 May, Stockholm.

MCKINNON, Ronald, Kenichi OHNO and Kazuko SHIRONO, (1996), "The syndrome of the ever-higher yen, 1971-95: American mercantile pressure on Japanese monetary policy", NBER Asian Seminar on Economics, Hong Kong 19-22 June.

MIZEN, Paul and Brian TEW (1996), "Proposals to ensure a smooth transition to European Monetary Union by 1999", *The World Economy*, Vol. 19, No. 4, July, pp. 387-406.

MONTICELLI, Carlo and Luca PAPI (1996), *European Integration, Monetary Co-ordination and the Demand for Money*, Oxford.

MUNDELL, Robert (1993), "EMU and the international monetary system: A transatlantic perspective", Oesterreichische Nationalbank, *Working Paper*, No. 13.

OECD (1995), "Macroeconomic consequences of the move to European Monetary Union", ECO/GEN(95)5, a paper prepared by the European Commission.

OECD (1996a), "Trend movements in real effective exchange rates for the United States and Japan", ECO/GEN(96)6ANN3.

OECD (1996b), "Have long-term interest rates among the three major economies become more synchronised? *Economic Outlook*, No. 60, December, pp. 30-35.

SCHLESINGER, Prof. Dr. Helmut (1996), "The passage to the euro", *CEPS Working Party Report*, No. 16, December.

SHIGEHARA, Kumiharu (1991a), "Commentary: Global Implications of Trade and Currency Zones", symposium proceedings sponsored by the Federal Reserve Bank of Kansas City, Jackson Hole, Wyoming, August.

SHIGEHARA, Kumiharu (1991b), "The external dimension of Europe 1992: its effects on relations between Europe, the United States and Japan", in Padoa-Schioppa, Tommaso ed., *Europe After 1992: Three Essays*, Essays in International Finance, No. 182, Princeton University, May.

UCTUM, Merih (1996), "European integration and asymmetry in the EMS", Federal Reserve Bank of New York, *Research Paper*, No. 9605.

WOODFORD, Michael (1996), "Control of the public debt: A requirement for price stability?", NBER *Working Paper*, No. 5684, July.

ECONOMICS DEPARTMENT

WORKING PAPERS

A complete list of Working Papers is available on request.

173. *The NAIRU in Japan : Measurement and its Implications*
(February, 1997) Fumihira Nishizaki

172. *The Unemployment Problem - A Norwegian Perspective*
(February, 1997) Steinar Holden

171. *The Reliability of Quarterly National Accounts in Seven Major Countries : A User's Perspective*
(February, 1997) Robert York and Paul Atkinson

170. *Confidence Indicators and their relationship to changes in Economic Activity*
(October, 1996) Teresa Santero and Niels Westerlund

169. *Labour Productivity Levels in OECD Countries : Estimates for Manufacturing and Selected Service Sectors* (September, 1996) Dirk Pilat

168. *Ageing Populations, Pension Systems and Government Budgets : Simulations for 20 OECD countries*
(September, 1996) Deborah Roseveare, Willi Leibfritz, Douglas Fore and Eckhard Wurzel

167. *Modelling the Supply Side of the Seven Major OECD Economies*
(August, 1996) Dave Turner, Pete Richardson and Sylvie Rauffet

166. *Size Distribution of Output and Emloyment: a Data Set for Manufacturing Industries in Five OECD Countries, 1960s-1990*
(August, 1996) Bart van Ark and Erik Monnikhof

165. *Trade and Competition: Frictions after the Uruguay Round*
(July 1996) International Trade and Investment Division

164. *Corporate Governance, Compeition and Performance*
(June 1996) Colin Mayer

163. *Fiscal Relations within the European Union*
(April 1996) Peter Hoeller, Marie-Odile Louppe and Patrice Vergriete

162. *Mark-up Ratios in Manufacturing Industries*
(April 1996) Joaquim Oliveira Martins, Stefano Scarpetta and Dirk Pilat

161. *Innovation, Firm Size and Market Structure: Schumpetarian Hypotheses and Some New Themes*
(April 1996) George Symeoindis

160. *Valuing the Right to Tax Incomes: An Options Pricing Approach*
(April 1996) Teun Draaisma and Kathryn Gordon

159. *Innovation and Competitive Advantage*
(October 1995) P. A. Geroski

158. *Monetary Policy at Price Stability: A Review of Some Issues*
(September 1995) Malcolm Edey, Norbert Funke, Mike Kennedy and Angel Palerm

157. *Technical Progress, Factor Productivity and Macroeconomic Performance in the Medium Term*
(September 1995) Claude Giorno, Pete Richardson and Wim Suyker

156. *Ageing Populations, Pension Systems and Government Budgets: How do they Affect Savings*
(August 1995) Willi Leibfritz, Deborah Roseveare, Douglas Fore and Eckhard Wurzel

155. *The Determinants of Real Long-Term Interest Rates: 17 Country Pooled Time-Series Evidence*
(June 1995) Adrian Orr, Malcolm Edey and Michael Kennedy

154. *An Assessment of Financial Reform in OECD Countries*
(May 1995) Malcolm Edey and Ketil Hviding

153. *Markets for Tradeable CO_2 Emission Quotas, Principles and Practice*
(February 1995) Graciela Chichilnisky and Geoffrey Heal

152. *Estimating Potential Output, Output Gaps and Structural Budget Balances*
(January 1995) Claude Giorno, Pete Richardson, Deborah Roseveare and Paul van den Noord

151. *NO_x/SO_x Emissions and Carbon Abatement*
(December 1994) Christophe Complainville and Joaquim O. Martins

150. *The Determinants and Properties of Monetary Conditions: Direct Survey Evidence from New Zealand*
(December 1994) Andreas Fischer and Adrian Orr

149. *Health Care Reform: Controlling Spending and Increasing Efficiency*
(December 1994) Howard Oxley and Maitland Macfarlan

148. *Macroeconomic Performance and Fiscal Policy Adjustments in the Medium Term: Alternative Medium-Term Scenarios*
(September 1994) Pete Richardson, Claude Giorno and Stephan Thurman

147. *The EC's Internal Market: Implementation, Economic Consequences, Unfinished Business*
(August 1994) Peter Hoeller and Marie-Odile Louppe

146. *Comparison of Model Structure and Policy Scenarios: GREEN and 12RT*
(August 1994) Alan Manne and Joaquim O. Martins

145. *An International Sectoral Data Base for Fourteen OECD Countries (Second Edition)*
(June 1994) F.J.M. Meyer zu Schlochtern and J.L. Meyer zu Schlochtern

144. *Fiscal Policy, Government Debt and Economic Performance*
(June 1994) Willi Leibfritz, Deborah Roseveare and Paul van den Noord

GENERAL DISTRIBUTION

ECONOMICS DEPARTMENT

WORKING PAPERS

This series of Working Papers is designed to make available, to a wider readership, selected studies which the Department has prepared for use within OECD. Authorship is generally collective, but main individual authors are named. The Papers are generally available in their original language, English or French, with a summary in the other.

The views expressed in this paper are those of the author(s) and do not necessarily reflect those of the OECD or of the governments of its Member countries.

Comment on the Papers is invited, and may be sent to OECD, Economics Department, 2 rue André Pascal, 75775 Paris Cedex 16, France. Additional copies of the Papers, on a limited basis, can be forwarded on request.

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT