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EMU, The Euro and The
European Policy Mix

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by
Jonathan Coppel, Martine Durand and Ignazio Visco

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ABSTRACT/RÉSUMÉ

One year ago most economic observers predicted that "fundamentals" were such that the euro was set to appreciate. In the event, the opposite has occurred. This has rekindled a debate on how well foreign exchange markets reflect fundamental determinants and led to calls for greater exchange rate stability, possibly through the introduction of formal exchange rate target zones. The first part of the paper focuses on these issues. It also looks at the euro's prospects as an international currency. To give a better sense of perspective, the paper compares recent exchange rate movements and measures of volatility with longer-term trends. The article argues that the difference in cyclical conditions in the United States and the euro area seems to have been a dominant factor driving the sizeable euro depreciation since early 1999, although when evaluated against longer term trends it appears much less dramatic; the euro is presently at about its past 5-year average level expressed in nominal effective terms and in real terms it is above the low levels reached in the 1980s. The second part of the paper is more forward looking. It tries to gauge the future direction of the euro-area economy based on its structural characteristics and the known macroeconomic policy stance in the United States, Japan and the euro area itself. In this context, the OECD Interlink model has been used to analyse the implications of potentially large changes in exchange rates and of accelerated structural reforms in the euro area. The results of this analysis show that even a sharp correction in the dollar exchange rate driven by concerns about the worsening US external position would have only limited effects on the euro area economy over the medium run.

JEL classification: E44, F31

Keywords: EMU, exchange rate regimes, exchange rates, policy mix

Il y a un an, la plupart des observateurs économiques prévoyaient qu'au vu des "fondamentaux" l'euro allait s'apprécier. En l'occurrence le contraire a eu lieu. Ceci a ravivé le débat sur la capacité des marchés de changes à refléter les déterminants fondamentaux des économies et a donné lieu à des appels pour une plus grande stabilité des taux de change, passant par exemple par l'introduction formelle de zones cibles. La première partie de ce document porte sur ces questions. Elle considère également les perspectives pour l'euro à devenir une monnaie internationale. Afin de mieux appréhender les évolutions récentes de taux de change et leur volatilité, ces dernières sont comparées à leurs tendances de long terme. Le document montre que la divergence de position conjoncturelle entre les États-Unis et la zone euro semble avoir été un facteur déterminant dans la dépréciation importante de l'euro depuis le début de 1999, même si, sur plus longue période, cette dépréciation apparaît moins marquée: l'euro est actuellement à son niveau moyen des cinq dernières années en termes effectifs nominaux et largement au dessus des bas niveaux atteints dans le milieu des années 80 en termes réels. La seconde partie du document est plus prospective. Elle essaie d'évaluer la direction future de l'économie de la zone euro, à partir de ses caractéristiques structurelles et des politiques macro-économiques connues aux États-Unis, au Japon et dans la zone euro elle-même. Dans ce contexte, le modèle Interlink de l'OCDE a été utilisé pour analyser les implications pour la zone euro de possibles larges variations de change et d'une accélération du processus de réformes structurelles. Cette analyse montre qu'une correction même substantielle du taux de change du dollar due à une détérioration de la position extérieure des États-Unis n'aurait, à moyen terme, que des effets limités sur l'économie de la zone euro.

Classification JEL : E44, F31

Mots-Clés : UME, régimes de taux de change, taux de change, policy mix

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TABLE OF CONTENTS

EMU, THE EURO AND THE EUROPEAN POLICY MIX	4
1. Introduction.....	4
2. Movements and volatility of the euro	5
2.1 What has happened to the euro?	5
2.2 The “fundamental” value of the euro.....	7
2.2.1 Short-term considerations.....	7
2.2.2 Longer-term considerations	7
2.3 Could exchange rate volatility be reduced?.....	9
2.4 The euro as an international currency	11
3. Prospective policies and economic developments in the euro area	13
3.1 Euro area structural characteristics and the implications for macroeconomic policy.....	13
3.2 The expected macroeconomic policy stance in the euro area and the other major regions over the short and medium term	14
3.3 Simulating a different path for exchange rates	16
3.4 Assuming faster progress in structural reform in the euro area	19
4. Conclusions.....	20
BIBLIOGRAPHY.....	21

EMU, THE EURO AND THE EUROPEAN POLICY MIX

Jonathan Coppel, Martine Durand and Ignazio Visco¹

1. Introduction

1. The euro has now been in existence for over a year with the conduct of monetary policy framed in the context of economic developments for the area as a whole. Initial fears, raised in some quarters, about problems concerning the transition and implementation of a single monetary policy did not materialise. Indeed, monetary policy and the stance adopted by the European Central Bank (ECB) have been broadly judged as appropriate. Inflation has stayed below 2 per cent, inflation expectations are low and recently output growth across the euro area has started to increase. This has been accompanied by substantial employment gains and a decline in the rate of unemployment to below 10 per cent for the first time in 7 years. The OECD expects the recovery to continue over the next couple of years and without substantial inflationary pressures. In short, the first year of the euro has coincided with broadly positive economic outcomes and favourable prospects.

2. Against the background of an improving economic conjuncture, together with a current account surplus and expectations of narrowing interest rate differentials *vis-à-vis* the United States, several pundits a little more than year ago predicted that the value of the euro would appreciate against the dollar and other currencies. But the opposite has occurred. Since the launch of the euro, its value has steadily declined by about 14 per cent against the dollar to reach a level close to parity and has also fallen, albeit in most cases by smaller magnitudes, against other major currencies. The ECB openly acknowledges that it closely monitors the exchange rate in order to assess the impact of currency movements on inflation, but has refused to express a view on what it considers the euro's "fundamental" or medium-term equilibrium value. This, no doubt, partly reflects the difficulty of calculating reliable estimates of the directly unobservable concept of equilibrium exchange rates. On the other hand, since the euro's depreciation has rekindled a debate on how well foreign exchange markets reflect fundamental determinants and led to calls

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for greater exchange rate stability, possibly through the introduction of formal exchange rate target zones, some notion of the equilibrium exchange rate is necessary, if only, in order to help assess such proposals.

3. This paper focuses on these issues. Specifically, it attempts to assess whether the depreciation of the euro over the past year can be explained by economic fundamentals. But first, to give a better sense of perspective, the paper compares recent exchange rate movements and measures of volatility with longer-term trends. Against this background, the issue of exchange rate target zones and central bank interventions as devices to limit currency volatility are considered. The paper also looks at the euro's prospects as an international currency. The second part of the paper is forward looking. It tries to gauge the future direction of the euro-area economy based on its structural characteristics and the known macroeconomic policy stance in the three main economic regions (the United States, Japan and the euro area itself). The potential implications for future exchange rate developments are then discussed. For illustrative purposes, the OECD's Interlink model is used to simulate the impact of significant exchange rates changes and of structural adjustment in the European labour and product markets on output, inflation and the external positions of the euro area itself and the other major regions.

2. Movements and volatility of the euro

4. Exchange rate movements reflect multifarious factors and hence it is difficult, if not impossible, to attribute changes in the value of a currency to specific events or developments. Exchange rates respond to divergent cyclical positions and monetary policies, differences in productivity growth, terms of trade developments, and are part of the necessary process to correct for external position imbalances. Views vary widely, however, on how well foreign exchange markets reflect fundamental determinants and how well they serve as an equilibrating force, and underlie policy prescriptions on the desirability, practicality and nature of government intervention in exchange rate markets. The main concerns with foreign exchange markets are twofold. First, some argue that if exchange markets are left alone, they may not always reflect fundamentals and can lead to large and possibly protracted deviations in the value of a currency from its long-run equilibrium level, and secondly they give rise to excessive exchange rate volatility. Such outcomes bear on policy, since they could result in significant and persistent effects on bilateral trade flows and generate protectionist trade pressures. These could indirectly lead to pressures for inappropriate policy choices, exacerbate output fluctuations and, in the context of the euro, risk undermining confidence in the new currency and thus damage its prospects as an international currency. Such concerns have led some commentators to advocate central bank interventions in currency markets in order to attempt to limit fluctuations in the euro, while others have gone further, calling for the introduction of target zones for the value of the euro *vis-à-vis* the dollar and the yen.² Evaluating the appropriate policy response to such concerns depends on a number of issues. First, do market exchange rates deviate from their "fundamental" levels and if so, to what extent, for how long, and does it matter? Second, how volatile are exchange rates and has volatility changed over time, and does exchange rate volatility harm economic performance? And thirdly, is it reasonable to expect the dollar/euro and yen/euro exchange rate to be stable in the current conjunctural context and how practical and effective would a dollar/euro and yen/euro exchange rate target zone be in terms of limiting exchange rate volatility?

2.1 What has happened to the euro?

5. Debate over appropriate exchange rate policy was quick to surface, following the launch of the euro and was no doubt prompted by the subsequent falls in its value against the dollar and the yen. At the beginning of 1999, when the euro was launched it was worth \$1.18 against the US dollar while the yen

2. See *inter alia* Bergsten (1998) and Coeuré and Pisani-Ferry (1999).

traded at 134 to the euro. Since then it has depreciated by some 14 per cent *vis-à-vis* the US dollar, 22 per cent against the Japanese yen and 12 per cent against the pound sterling (Table 1). However, in effective terms, the depreciation of the euro has been less marked at some 10 per cent since the beginning of the year. This is because the combined weight of the yen, the dollar and the pound in the OECD euro effective exchange rate is around 50 per cent (Table 2) and other currencies have tended either to depreciate or to appreciate less against the euro. Measures of effective exchange rates are clearly sensitive to the choice of the set of countries and the weighting system underlying the calculations.³ However, since January 1999, most indicators point to similar effective depreciations (Figure 1). Indeed, according to the ECB measure, which includes only 13 trading countries, the effective depreciation of the euro since its launch amounts to 12 per cent, while the IMF measure (which covers countries with trade weights greater than 1 per cent) points to an 11 per cent depreciation. On the other hand, the extent of euro appreciation⁴ in the year and a half preceding its introduction differs quite markedly according to the country coverage of the various indicators. Given the large swings in some emerging market currencies over the past two years, their exclusion tends to understate movements in effective exchange rates. In particular, the euro is estimated to have appreciated by about 15 per cent between the third quarter of 1997 and the fourth quarter of 1998 according to the OECD measure. Rescaling this measure to include the same 13 trading partners as the ECB, or using the ECB measure, would lead to an appreciation of about 8 per cent. The IMF measure for its part indicates a 13 per cent appreciation over that period.

(Table 1. Developments in the euro exchange rates)

(Table 2. Weights underlying the calculation of effective exchange rates)

(Figure 1. Euro exchange rates)

6. Judging the present value of the euro also depends on the time frame considered. Viewed over a longer perspective, in nominal terms the effective level of the euro has reached a level which is close to its past 5 years average level. It is currently slightly above where it was in the middle of 1997 before the Asian crisis, and considerably higher than in the mid-1980s. Excluding the emerging market economies, especially in Latin America which registered hyper inflation and large depreciations in the 1980s, the present level of the euro nominal effective rate appears to be at its lowest point of the 1990s, but still above its mid-1980s level. Furthermore, the range between minimum and maximum per cent changes in exchange rate indices observed over the past five years is narrower for the euro compared with the yen or dollar. To illustrate, the maximum nominal effective exchange rate change for the yen and the dollar over the past five years was about 30 per cent. In contrast, the maximum variation for the euro over this period was closer to 15 per cent. Viewed over a longer perspective, therefore, the movements of the euro over the past year appear less dramatic than bilateral changes *vis-à-vis* the dollar would suggest.

3. The OECD measure is based on a basket of 30 countries, compared with 13 in the ECB series and uses moving rather than fixed weights. The IMF measure includes countries with trade weights greater than 1 per cent and uses weights averaged over the 1980-1998 period. For more details on the OECD methodology, see Durand *et al.* (1998).

4. Pre-1999 series are compiled using the synthetic value of the euro based on its eleven constituent currencies, i.e. eleven countries have been included in the indicator, even though they joined the European Monetary System at different points in time. More precisely, the synthetic euro-dollar exchange rate is calculated as a chain-linked index based on weighted changes in euro-area countries' bilateral dollar exchange rate. Weights applied are based on shares of euro-wide GDP at current dollar exchange rates in the previous period (moving weights). The value of the euro-dollar exchange rate of 4 January 1999 is used as the starting point to reproject the series historically.

2.2 *The “fundamental” value of the euro*

2.2.1 *Short-term considerations*

7. Many economists and market participants, however, have been surprised by the decline of the euro. Prior to the launch of the new currency, most forecasts were confident that the euro would appreciate. Such predictions were based on an assessment of “fundamentals”, which *a-priori* appeared in line with an appreciating currency; a positive economic outlook for the euro area, a continued current account surplus and expectations of narrowing differentials in euro short and long-term interest rates *vis-à-vis* those in the United States. Changes in real interest rate differentials and cumulated current account balances as a share of GDP have indeed in the past been correlated with major movements in the real bilateral euro/dollar exchange rate, although for Japan the sign of the correlation coefficient switches, which may reflect other offsetting factors (Table 3).

(Table 3. Correlation coefficients between the real euro exchange rate and real interest rate differentials)

8. However, a significant force underlying the depreciation of the euro over much of 1999 seems to have been the improvement in US economic prospects relative to those in the euro area (see Corsetti and Pesenti, 1999). Indeed, the conjuncture changed very quickly over the first few months of 1999. Output for the euro area as a whole suffered in response to the series of financial crises in emerging market economies, as well as political uncertainties in some member countries, which particularly hit industrial production. Measures of business confidence weakened and concerns were raised in some quarters over the prospect of deflation. On the other hand, the economic situation in the United States remained relatively buoyant and the near term outlook positive. The prospective divergence in relative cyclical positions correlated closely with the decline of the euro *vis-à-vis* the US dollar, and since mid-1999, *vis-à-vis* the yen (Figure 2). More recently, expectations of a relatively weak cyclical position in the euro area have been gradually replaced by a more positive outlook. The most recent OECD projections, finalised last November and which for the euro area are close to the consensus view, expect for the first time in several years that output levels in all major OECD regions will move towards their respective potential over the projection period, albeit marginally so in Japan. For the euro area, output could rise by 2¾ per cent in both 2000 and 2001 to virtually close the output gap, which is consistent with further and substantial reductions in unemployment and broadly steady inflation (Table 4).

(Figure 2. Cyclical divergence and euro market exchange rates)

(Table 4. Short-term projections for the euro area)

2.2.2 *Longer-term considerations*

9. The improved and more balanced economic outlook, however, does not appear to have provided much positive support for the euro. The apparent indifference of currency markets to shifts in short-term developments and prospects has rekindled a debate on the behaviour of market exchange rates *vis-à-vis* their longer-term determinants. But while it is relatively straightforward to observe currency movements in exchange rate markets, the long-term or equilibrium value of an exchange rate is not observed. There exist a number of empirical approaches to estimate the equilibrium exchange rate. The two most prominent examples are fundamental equilibrium exchange rates (FEERS) and purchasing power parities

(PPP).⁵ The PPP approach involves calculating international competitiveness ratios using aggregate price or cost indices (such as consumer prices, GDP deflators, export prices or unit labour costs) and conceptually is based on the so-called “law of one price”. The FEER (or macroeconomic balance) approach focuses on the real exchange rate needed to achieve medium-term internal and external equilibrium. These approaches, however, give a wide range of estimates, reflecting large uncertainty. For example, FEERs of the dollar *vis-à-vis* the Deutschmark calculated by Williamson (1994), based on a range of macro models and underlying assumptions, vary by as much as 26 per cent. A more recent report (CAE, 1999) calculated a range of \$1.07 to \$1.43 against the euro, while in a recent IMF paper, the equilibrium parity of the euro is estimated at about 1.26 dollar per euro (Alberola *et al.*, 1999). Such numerical estimates are very fragile and are often derived from past behavioural relationships, which may no longer be appropriate. They differ a lot depending on the selected base period, are sensitive to the price measure used, hypotheses made for price expectations, the choice of the basket of countries used for comparison and are subject to substantial variation over time. For example, in the case of Finland, Feyzioglu (1997) estimates that Finland’s FEER has fluctuated by as much as 20 to 30 per cent during periods of two to three years.

10. The OECD publishes estimates of purchasing power parities for its member countries and calculates from these estimates an euro PPP exchange rate. Both the PPP and spot exchange rate vary over time, but are rarely equal to each other (Figure 3). The euro/dollar exchange rate was some 30 per cent “overvalued” in the mid-1980s, while over the 1990s the deviation of the market exchange rate from its PPP level has averaged about 15 per cent. The mid-1980s corresponded to a period where the United States was pursuing a loose fiscal policy and a tight monetary policy, which put upward pressure on domestic interest rates, attracted large inflows of foreign capital and led to the currency appreciation, which in time corresponded to the widening of the US current account deficit to almost 3½ per cent of GDP in 1987. By contrast, the 1990s have been characterised by a growing imbalance between private saving and investment, and while in the 1980s the United States held a positive net foreign position, the more recent period saw a substantial accumulation of net foreign debt.

(Figure 3. Difference between market and PPP euro exchange rate)

11. For the euro *vis-à-vis* the Japanese yen, fluctuations from the estimated PPP level have been equally large, although in the opposite direction since the mid-80s (an “undervalued” dollar and an “overvalued” yen). The large and persistent deviations of the market exchange rate from their PPP level suggest that the series do not revert to their mean, or that if they do, the speed of adjustment is very slow. Indeed, statistical tests either fail to reject the hypothesis of a unit root in the case of the euro/dollar and the euro/yen -- although for the latter the unit root test is rejected when a deterministic trend is included -- or indicate that on average the half-time adjustment speed is around 3-4 years.⁶

12. PPPs as measured by the OECD are however imperfect to assess equilibrium levels of exchange rates. Indeed, they are based on a comparison of prices of goods and services, not all of which are necessarily traded. Moreover, since they reflect prices of final expenditures, they include producers’ mark-ups as well as indirect taxes. For all these reasons it would be better to compare prices of traded goods at the factory gate. Such comparisons are however difficult to conduct. Nevertheless, in order to address these types of issues, the OECD has over the years developed a number of indicators of competitiveness, which capture countries’ ability to sell products in world markets. Such indicators include levels of unit

5. See Isard and Faruquee (1998) for more details.

6. See Nadal-De Simone and Razzak (1999), MacDonald (1999) and Rogoff (1999).

labour costs in the manufacturing sector and indices of relative unit manufacturing labour costs, of manufactured export prices and of consumer prices. Due to data limitations, absolute cost comparisons can only be made for a limited number of countries and periods. Recent developments in relative costs and prices show that the recent real depreciation has fully unwound the real appreciation registered during the 1997-1998 financial crises -- which towards the end of 1998 also reflected some euro euphoria. Trends since the early 1970s indicate, however, that euro-area real effective exchange rates are still well above their low points reached in the mid-1980s -- corresponding to the high values of the dollar real effective rate. Indicators of real effective exchange rates calculated by either the ECB or the IMF point to similar trends.⁷ Worth noting, however, is the fact that variations in relative costs or prices are much less pronounced for the euro area than for either the United States or Japan (Figure 4).

(Figure 4. Trends in competitiveness indicators)

2.3 *Could exchange rate volatility be reduced?*

13. The debate over whether an exchange rate should be an issue of direct policy concern often tends to focus on the degree of exchange rate volatility. At the launch of the euro, fears were expressed that the euro area economy could suffer from excessive exchange rate volatility and that the advent of a new, potentially important international currency was a proper time to introduce mechanisms to reduce volatility in exchange markets. Volatility can be measured in many different ways. Table 5 reports one such measure: the standard deviation of quarterly changes in bilateral exchange rates for the major European currencies, the Japanese yen and the synthetic euro against the dollar between 1979 and 1999. Over the twenty-year period, this measure of volatility is broadly the same for all the currencies shown, at about 5½ per cent. The same calculation for the nominal effective and real effective exchange rates reveals a generally lower degree of volatility, but more variation across currencies. Among the currencies of countries shown and which were part of the ERM the volatility of the nominal and real effective exchange rate was relatively low (except for Italy and the United Kingdom) at between 1 and 2 per cent. In part, this reflects these countries' exchange rate arrangements which aimed to keep bilateral exchange rate movements within narrow bands. Since the majority of these countries' trade is with each other, their currencies have an important weight in their respective nominal and real effective exchange rate indices. For the euro area, on the other hand, historical volatility of the effective euro exchange rate is approximately fifty per cent higher (about 3 per cent on average), which reflects the fact that the constituent currencies are mostly from non-ERM countries. Euro area effective exchange rate volatility, however, is broadly the same as for the United States and considerably lower than for the Japanese yen.

(Table 5. Volatility of bilateral and effective exchange rates)

14. As one would expect, studies find that exchange rate volatility over the Bretton Woods era of fixed exchange rate regimes (1945-1971) was low (Bordo and Eichengreen, 1993; Obstfeld, 1998). Indeed, fluctuations of quarterly changes in bilateral and effective nominal exchange rates were close to zero. But the Bretton Woods era was a period of low and widely restricted capital mobility, which made it relatively easy to maintain fixed parities. Of more practical relevance is whether exchange rate volatility has changed over the period spanning flexible exchange rate regimes. From this perspective there is only

7. While, as seen earlier, these indicators may differ in nominal terms, reflecting whether emerging market economies are included in the calculations, this is no longer the case for indicators expressed in real terms since large depreciations in these economies have generally been accompanied by equally large price increases relative to their trading partners.

limited evidence that there has been an increase in volatility for the major currency areas. Figure 5 shows moving averages of month-to-month changes in bilateral exchange rates since 1973 up until late 1999. On this measure, volatility of the Deutschmark against the dollar in the last decade is not particularly high by historical standards and considerably lower than during the 1980s. On the other hand, bilateral exchange rate volatility against the yen has been relatively high over the 1990s and seems to have increased since the beginning of 1999. However, such volatility appears to be more linked to moves in the yen than in the euro since the degree of yen/dollar volatility has also risen over this period. In addition, the incidence of large daily changes (more than 1½ per cent) seems to have also risen, but again only for the yen (Figure 6).

(Figure 5. Variance of monthly changes in nominal exchange rates)

(Figure 6. Incidence of large daily changes in exchange rates)

15. Even though exchange rate volatility does not appear to have increased and exchange rate fluctuations are now probably less important than before since the euro area is a relatively closed economy compared with the constituent member countries, the issue of whether to introduce target zones for the value of the euro *vis-à-vis* the dollar and the yen resurfaced in late 1998.⁸ Advocates of target zones argue that excessive nominal exchange rate volatility has an adverse effect on trade and investment *via* increased uncertainty. Moreover, market exchange rates can diverge -- and over protracted periods of time -- from their fundamental level and thereby result in a loss of competitiveness and impact on bilateral trade flows. Empirical as well as theoretical studies, however, are less sanguine about the possible deleterious effects of exchange rate volatility on trade and investment (Bacchetta and van Wincoop, 1998). This may reflect that instruments are available that allow those engaged in trade to insure against short-term fluctuations (Viaene and de Vries, 1992). Availability of such instruments for major currencies and at a reasonable cost has increased considerably over the past few decades.

16. Even supposing target zones were agreed among the three major currencies, it is not clear that wide fluctuations in their effective rates could be avoided. Given the relatively low weight that any of these currencies have in each other's effective exchange rate (see Table 2 above), large fluctuations could still be associated with bilateral movements between them and other currencies. In addition, there are a

8. The formal stipulations concerning the choice of exchange rate regimes between the euro and other currencies require a considerable degree of consensus. The Maastricht Treaty specifies that the Council - made up of representatives of the Member States - acting unanimously and after consulting the ECB as well as without prejudice to the objective of price stability could "conclude formal agreements on an exchange rate system for the euro in relation to non-euro currencies" (Article 109.1). Furthermore, in the absence of such an exchange rate system, the Council could "formulate general orientations for exchange rate policy in relation to these currencies" (Article 109.2), possibly consisting of a unilateral policy of intervening whenever the euro is deemed too weak or too strong. On the other hand, according to a resolution of the European Council in December 1997, "it is understood that general exchange policy guidelines *vis-à-vis* one or more non-Community currencies will be formulated only in exceptional circumstances" (Paragraph 45 of the Presidency Conclusions of the European Council meeting in Luxembourg on 12 and 13 December 1997). Thus it is most likely that any formalised arrangement would require a consensus to be reached between the Council and the ECB. To date, however, proposals for target zones have met with criticism from the ECB. The ECB President has warned that target zones would pose a potential conflict with the ECB's mandate to achieve price stability and the ECB's Chief Economist has remarked that the benefits of monetary union could be in part lost if the ECB were not able to concentrate on European price stability, but had to take into account monetary developments in the United States. Thus, while the ECB does have the right to be consulted, it is difficult to conceive of any type of formal arrangement on which a consensus would be found.

number of problems related to the implementation of target zones. For instance, it would be difficult to get participants to agree on the choice of central parity and the bands around it since there is no generally accepted method for calculating equilibrium exchange rates. In addition, the bands may not be credible and could require large swings in interest rates, which would effectively shift some volatility from the exchange market to money and bond markets. Interest sensitive sectors of the euro economy would face heightened risks, while those producing tradeable goods would benefit. Moreover, interest rate moves to keep exchange rates within bands may not necessarily be consistent with price stability and thus there is a risk that credibility of monetary policy may be lost, raising risk premia and undoing part of the benefits of monetary union.⁹

17. Large exchange rate fluctuations have also sometimes raised calls for more frequent central bank interventions in exchange markets. In the past, central banks of major countries have frequently intervened on exchange markets. For example, the Federal Reserve has intervened 125 times on the dollar/yen market between 1985 and 1995. These interventions were generally carried out in collaboration with other central banks. Since then, interventions have been less frequent, but amounts involved may have been larger. Most central bank interventions have generally been sterilised. In this case, the impact on exchange rates mainly works through signal effects and expectations. In practice, the success of interventions has been rather limited, and only a few interventions seem to have had an impact over a short period of time. Ultimately, the success of interventions depends on the accompanying evolution in macroeconomic policies and conditions. Given the size and power of global capital markets, recent interventions have rarely led to long-lasting changes in expectations, unless these were accompanied by expected changes in more fundamental determinants of exchange rates.¹⁰

2.4 *The euro as an international currency*

18. While the euro officially came into existence at the beginning of 1999, it will not completely replace domestic currencies in circulation and be used to denominate all financial and other business transactions in member countries until the start of 2002.¹¹ The euro, however, is already emerging as a major international currency, which has implications for other countries as well as for monetary policy in the euro area. Before the launch of the euro, the Deutschmark was the only European currency which was used in a significant way as an international currency but its importance was nonetheless still minor compared with the dollar, which has dominated as the international currency since the second world war.

19. The use of a currency as an international money depends on a number of factors. These include:

- A large domestic market;
- A high exposure to trade, a large weight in global trade and exporter and importer preferences favouring the currency as a unit of account;

9. For arguments against target zones see Hills, Peterson and Goldstein (1999), which also contains a dissenting view in favour of target zones by Bergsten, Volcker *et al.* pp. 125-129.

10. For an analysis of the effectiveness of central bank interventions, see Catte *et al.* (1994), and comments therein, and Benassy-Quéré (1999).

11. At the same time as the launch of the euro the payments systems gave users the opportunity to use cheques and credit cards debited from euro denominated accounts, but these payments represent a very small proportion of total transactions.

- The existence of a large and competitive financial market in which the currency denominated assets are actively traded;
- Economic and political stability of the currency area, thereby favouring it as a “safe haven” currency; and
- High quality and competitive pricing of cross-border payment systems.

20. The relative importance of these factors is difficult to isolate, not least because it is the combination of these traits which is critical. This is no doubt partly the reason for the low use of the Japanese yen as an international currency despite its size and share of world trade. It is still too early to assess whether the euro will become a relevant international currency and a major competitor to the US dollar, but already it has gained considerable importance in the bond and money markets and as a reserve currency. Euro denominated bond issues by residents and non-residents in the first 9 months of 1999 accounted for around 45 per cent of the bonds issued in the international market, which is approximately the same share as for US dollar denominated bonds and well exceeds the traditional aggregate share of bonds denominated in the member country currencies of the euro area (Table 6). And in the third quarter of 1999, new issues of euro denominated international bonds were larger than those issued in US dollars. Corporate debenture issues denominated in euros have soared, in part reflecting the hectic pace in Europe of merger and acquisition activity. In addition, a number of sovereign issuers, such as Argentina, Brazil, Canada and South Africa, have launched sizeable euro-denominated issues so as to increase the weight of the euro in the currency distribution of their foreign debt.¹² And an increasing number of central banks have decided to hold a share, or increase their share, of official reserves in euros. At the end of 1998 some 14 per cent of official exchange reserves were denominated in euro area national currencies or ECUs, against 57 per cent in dollars. This share is likely to rise since the euro is used as an anchor currency in over 50 countries, mostly in Europe and Africa. The euro is also likely to become a more important reserve currency in Asia and Latin America, as countries in these regions reassess their reserve management positions in the light of the new diversification opportunities offered by the euro. The Hong Kong monetary authority, for instance, recently announced its decision to increase the share of the euro in its official reserve portfolio from 10 to 15 per cent.

(Table 6. The euro as an international currency)

21. The fact that the euro is starting to play a significantly larger role as an international currency than individual country currencies previously combined has implications for monetary policy. For instance, if the international demand for the euro were erratic and accounted for a relatively large component of total demand for the currency, then the currency component of euro area monetary aggregates would be volatile. This would render the monetary aggregates less useful as a guide to inflationary pressures in the domestic economy. The resistance by the Bundesbank to see the Deutschmark becoming an international currency was to a large extent explained by this type of argument, given that monetary aggregates were an important element in its strategy. Such considerations do not seem to prevail in the ECB monetary policy framework.

12. Part of these proceeds, however, have subsequently been converted into dollars to repay dollar denominated debt, which some commentators have cited as a factor contributing to the weakness of the euro, although given the magnitudes involved the overall impact would at best be marginal.

3. Prospective policies and economic developments in the euro area

22. There is a Dutch proverb which states *if one would know everything in advance, one could travel the world on twopence*.¹³ This is perhaps no more true than when it comes to predicting the future value of an exchange rate. The objective of this section, however, is not to attempt to forecast the value of the euro *vis-à-vis* other currencies, but to shed some light on the implications that possible future developments in financial markets and policies may have on the macroeconomic performance of the euro area. Particular attention is also given to the implications for external positions in the main world economic regions. Even this goal, while considerably less ambitious, is subject to a wide range of uncertainty and prone to large errors. Part of the difficulty is that very few predictions of key economic variables, including the exchange rate, are truly unconditional. Indeed, in practice, macroeconomic projections usually either include normative elements or are based on a series of assumptions.

23. Nevertheless, for illustrative purposes, the OECD's Interlink model has been used to simulate a different path for exchange rates than the one embodied in the OECD short-term projections and the medium-term baseline¹⁴ and to examine its effects on the main macroeconomic variables, also taking into account different policy responses. The underlying structure of the OECD's Interlink model is that of a short-run dynamic type model with properties in line with the Mundell-Flemming framework for evaluating the relative effectiveness of fiscal and monetary impulses and with neo-classical steady state characteristics.¹⁵ The simulations undertaken here are described in more detail below, but we first present an overview of structural conditions in the euro area and the expected stance of macroeconomic policy in the three main OECD economic regions, since these bear on the baseline against which the simulations are evaluated.

3.1 Euro area structural characteristics and the implications for macroeconomic policy

24. The setting of macroeconomic policy in EMU needs to be cognisant of structural characteristics in euro area economies as well as at the aggregate level. Greater structural rigidities imply, *inter alia*, slower adjustment of real wages and other relative prices to excess demand or supply conditions on product and labour markets, and consequently result in larger fluctuations in quantities in response to economic shocks. Structural rigidities are also generally associated with higher persistence in output and employment movements, implying longer cycles in response to shocks. This in turn puts limits on the speed at which macroeconomic policies can be used to reduce unemployment towards its long run equilibrium and increases the risk of temporary shocks eventually affecting structural unemployment and potential output (hysteresis effects). In addition, structural features can influence the size, speed and

13. This quotation comes from a paper by Henk Don on "Forecasting in Macroeconomics" (Don, 1999).

14. The OECD's bi-annual short-term projections assume a constant nominal exchange rate, along with a given path for commodity prices, a fiscal policy stance based on measures and stated policy intentions, where these are embodied in well-defined programmes, and a monetary policy stance in line with the official objectives of the relevant monetary authorities. At times, a constant nominal exchange rate assumption may be at odds with other assumptions about policy developments and some aspects of the projections. In that case, it highlights possible inconsistencies or tensions and thus provides a basis for policy recommendations to correct them. Similarly, in the OECD medium-term baseline, which extends the short-term projections over three additional years and is mainly used to provide a basis for comparisons with simulations and scenarios based on alternative assumptions, exchange rates are assumed to remain constant in real terms beyond the short-term horizon.

15. See Richardson *et al.* (2000).

symmetry of the monetary policy transmission mechanism and can contribute to worsen the trade-off between the volatility of inflation and output.

25. Structural rigidities manifest themselves through a number of channels. These include a high degree of real wage resistance, slow mark-up adjustment and high persistence in employment and unemployment. A number of factors suggest that structural rigidities are more significant in the euro area than in other large and relatively closed economies such as the United States. These comprise the high dispersion of structural unemployment rates across the euro area,¹⁶ more segmented capital, labour and product markets and the heterogeneity of wage determination institutions across the euro area.¹⁷

3.2 The expected macroeconomic policy stance in the euro area and the other major regions over the short and medium term

26. In principle, the adverse consequences of structural rigidities on the output inflation variance trade-off could be compensated by an increase in the credibility of monetary policy. Higher credibility can help reinforce monetary policy actions by, for example, modifying the behaviour underlying wage and price strategies. Credibility is largely determined by how well a central bank performs in terms of fulfilling its inflation objective. But the process of gaining credibility and containing inflation expectations can also be influenced by the institutional design of the monetary policy framework. For the euro area, a careful attempt has been made to gain credibility from the outset for the European Central Bank by enshrining the ECB's price stability objective in the Maastricht Treaty (Article 105) and its independence (Article 7 of the ESCB Statute). The ECB has quantified its price stability objective as keeping inflation (as measured by the HICP), below 2 per cent, while avoiding sustained declines in the general consumer price level.

27. Given the low level of inflation and inflation expectations in the euro area and the persistence of under utilised resources, at least in a large part of the area, the stance of monetary policy pursued by the ECB has been fairly relaxed (Table 7). Both short and long-term interest rates are low in historical perspective. Long rates have dropped sharply since 1993, initially in response to fiscal consolidation and lower inflation, and in some countries also helped by some "convergence play". More recently, with volatile financial conditions in emerging market economies, government bond rates in 1998 fell further,

16. In 1998, these ranged between 5 and 5½ per cent in the Netherlands, Portugal and Austria, around 8 per cent in Belgium, Germany and Ireland, and over 10 per cent in Finland, France, Italy and Spain (OECD, 1999b).

17. An approximate summary measure of the degree of real wage flexibility and the degree of real wage resistance can be broadly captured by estimating standard structural wage equations. An OECD forthcoming survey (OECD, 2000) of EMU developments after one year reports the results of a wage equation, estimated for individual euro area countries and across the euro area as a whole, as well as for the United States. The results indicate a high sensitivity of real wages to unemployment in the long run, but point to a relatively high degree of short-run rigidity as indicated by the difficulty to find a negative and significant short-term effect. The results also suggest that the speed of adjustment of real wages towards their long-run equilibrium level is much slower in the euro area than in the United States. Half of the adjustment is complete in less than 1½ years in the United States, whereas in the euro area it takes about 4½ years. Other empirical studies generally support both the finding that structural rigidities are more prevalent in the euro area than in the United States and that in the long run real wages in the euro area tend to be as sensitive to unemployment as in the United States (Obstfeld and Peri, 1998, Viñals and Jimeno, 1996, Balakrishnan and Michelacci, 1998, Scarpetta, 1996, Nickell and Layard, 1998). However, this clearly is not so over short horizons -- reflecting slow adjustment -- and is corroborated by the fact that unemployment has proved to be more persistent in the euro area than in the United States (OECD, 1999a, and Blanchard and Katz, 1997).

due to a shift in desired portfolio composition towards relatively less risky assets -- the so-called "flight to quality". However, with the improved economic situation in emerging markets the flight to quality has partially reversed and long rates over the past year have edged up by over 100 basis points (Figure 7). As a result, the slope of the yield curve is now largely positive and has steepened considerably compared with 12 months earlier. While nominal short-term interest rates are historically low, in real terms they are in line with their 5 year historical average. The euro area short-term interest rate differential with the United States narrowed in 1998 but it has widened since. By end-1999, it amounted to some 150 basis points, and about 40 basis points in real terms, close to pre-EMU levels. Given the persistently low levels of short-term interest rates in Japan, euro-area differentials *vis-à-vis* Japan have remained substantial since 1998.

(Figure 7. Nominal interest rates in major OECD regions)

(Table 7. Monetary conditions in the major OECD regions)

28. In the OECD's latest set of projections published in the December issue of the Economic Outlook, policy controlled interest rates are assumed to rise to about 6½ per cent by the end of 2000 in the United States as the economy, though slowing, is projected to continue to grow above potential and inflation picks up. In the euro area, with inflation pressures starting to build up, the ECB is also assumed to raise key rates, with three months market rates reaching around 4½ per cent by the end of 2001. In Japan, market rates should remain very low, though slowly rising during the course of 2000 as the recovery takes hold. Over the medium term, assuming that gaps between actual and potential output are broadly eliminated in the United States and the euro area -- a feature of the OECD medium-term scenario -- would yield a further narrowing of both short and long term differentials with the United States. Despite a further rise in Japanese interest rates, differentials between the euro area and Japan should remain substantial, of the order of 150 basis points in 2005.

29. Fiscal policy of countries in the euro area remains largely under the responsibility of national authorities according to the principle of subsidiarity -- a presumption in favour of national sovereignty. Nonetheless, policy is formulated in the context of the provisions of the Stability and Growth Pact (SGP) which, given current budgetary positions of most euro area countries, imposes relatively tight constraints on fiscal policy, and especially so in the large euro area countries. Despite significant progress on budget consolidation in the run-up to EMU, establishing the full ability to pursue counter-cyclical policies will require measures beyond those required to achieve the completion of budget improvements needed to achieve the goals set out in EU countries' Stability and Convergence programmes in 2002 (Figure 8).¹⁸ Indeed, the target budget balance -- a necessary condition also given the prospective demographic pressures on the budgets of member states -- would leave countries with little scope for discretionary actions to meet adverse shocks. In the United States, public finances have already moved into surplus and, provided pressures to cut taxes or to increase spending continue to be resisted, this trend is likely to continue over the medium term. In Japan, measures will have to be taken to arrest the explosive growth in public debt resulting from successive fiscal stimulus packages as soon as this can be done without compromising the current recovery.

(Figure 8. Fiscal indicators in the major OECD regions)

30. Thus, except perhaps in Japan, fiscal policies are fairly predictable in the five years to come. Given that monetary policy is expected to continue to be geared towards price stability in all major regions,

18. See, in particular, Chapter IV of OECD (1999c) on the size and role of automatic fiscal stabilizers. See also, on economic policy co-ordination within the EMU, Visco (1999).

this implies that the constellation of policy mixes is not foreseen to yield major changes in the values of exchange rates over the short to medium run. This feature characterises the OECD medium-term reference scenario which embodies paths for monetary and fiscal policies in the three major areas along the lines described above. As regards monetary policy, levels of interest rates are such that inflation is kept low, in line with medium-term objectives. Fiscal policies for their part imply reductions in gross public debt of about 12 percentage point of GDP in the United States and the euro area between 1999 and 2005, while in Japan, the ratio of gross public debt to GDP rises by more than 40 points. As a result of these policies, along with the assumption that commodity prices and exchange rates remain broadly unchanged in real terms, real output growth could average 2½ per cent in the euro area compared with about 3 per cent in the United States and 2 per cent in Japan over the period 2002-2005. Reflecting slow progress in the elimination of structural rigidities, unemployment should remain relatively high in the euro area, at about 8½ per cent in 2005 (Table 8).

(Table 8. The OECD medium term reference scenario)

31. As a result, a major feature of this reference scenario is that the closure of output gaps in most areas and the narrowing of interest rate differentials take place at the same time real effective exchange rates are assumed to remain unchanged from their present levels. Given projected inflation developments, this also suggests that convergence in cyclical conditions and levels of interest rates are expected to yield little movement in nominal exchange rates over the medium term.

32. However, another important feature of the scenario is that the present level of current account imbalances between major OECD regions are likely to persist over the medium term. This implies that the United States could see a deterioration in its negative net foreign asset position by more than 15 percentage points of GDP between 1999 and 2005, reaching about 35 percent (Figure 9). The main counterpart would be a substantial rise in Japan's positive net asset position, and to a much lesser extent in the euro area's as well. Under the assumption of imperfect asset substitution, such a worsening in the US external position might still take some time before raising investors' concerns about its sustainability. Eventually, however, with no signs of stabilisation, these concerns could trigger a major change in expectations about the future paths of exchange rates, yielding in particular a sharp decline in the US dollar, which could propagate to other markets, in particular equity markets. This reversal of confidence in dollar denominated assets could have important consequences not only for the United States but for Japan and the euro area as well.

(Figure 9. Net foreign asset positions as a per cent of GDP)

3.3 *Simulating a different path for exchange rates*

33. In theory, with perfect capital mobility and forward looking expectations, net foreign asset positions implicitly affect the exchange rate to the extent that they are built into the forward looking path of expected exchange rates as a terminal or equilibrium condition. Given this expected path, exchange rates then adjust to clear the goods markets after a shock. Putting it differently, this implies that net foreign assets or liabilities can not cumulate over time much beyond a level that can be sustained in the long run. This equilibrium level may of course vary across countries reflecting differences in demographics, trends in productivity, savings and rates of time preferences. However, stabilising net foreign asset positions at their equilibrium levels requires adjustments in the trade balance that are most likely achieved through exchange rate changes. General equilibrium models of the type developed by the OECD in the context of

its work on ageing (Turner *et al.*, 1999) or models with model-consistent expectations such as the IMF Multimod model¹⁹ are consistent with this type of approach.

34. Based on this approach, however, the build-up in external imbalances witnessed since the mid-1990s either suggests that present and foreseen net foreign asset positions are compatible with equilibrium levels, or if these positions are judged unsustainable, that a correction in exchange rates should have already taken place to re-equilibrate saving and investment balances. The fact that this correction has not yet occurred is not necessarily inconsistent with the approach described above, but certainly points to a rather peculiar equilibrium path. Several reasons, such as imperfect capital markets can be advanced to explain the slow adjustment process towards equilibrium. If markets are truly rational, however, net foreign asset positions should at some point be part of the arbitrage condition and one should expect exchange rates to adjust in the future in response to the accumulation of foreign debt or assets. Alternatively, one could argue that markets have so far been myopic, but this cannot be expected to last for ever, and in this case too, one might expect a change in behaviour leading to a correction in exchange rates.

35. Whatever the underlying behaviour, no attempt has been made here to model it. What has been done instead is to assume that a correction will take place in the near term and to look at the implications it might have on output, inflation and current account balances under different monetary policy responses. For that purpose, the OECD Interlink model, which embodies the following exchange rate determination, has been used:

$$e - e_{-1} = f(i - i^*, e^e - e_{-1})$$

$$e^e = f(e_{-1}, p - p^*, p_{-1} - p_{-1}^*, p_{-2} - p_{-2}^*)$$

where e and e^e are the actual and expected effective exchange rates expressed in logarithms, i and i^* are the domestic and (weighted) foreign short-term interest rates, and p and p^* are the domestic and (weighted) foreign GDP deflators (also in logarithms).

36. In the simulations, these conditions have been implicitly modified to take account of the net foreign asset positions. Given the current policy debate about the large and increasing US current account deficit and the risks it poses for the value of the dollar, this has been done by shocking the expected US effective exchange rate equation so as to generate a trade surplus sufficient to stabilise US net foreign liabilities at about 24 per cent of GDP over the medium term (compared with 35 per cent in 2005 in the baseline).²⁰ This has been achieved by implementing a sustained appreciation of about 30 percent of all

19. See Laxton *et al.* (1998).

20. Alternatively, in view of the large Japanese net foreign asset position, a similar exercise could have been conducted by simulating an appreciation of the yen *vis-à-vis* all other currencies. However, in view of the present conjuncture in Japan and the expected path of the recovery in the years to come, a substantial real appreciation of the yen -- of the sort likely to be needed to substantially reduce net foreign assets -- would induce a major recession with virtually no possibility for monetary policy to respond given the very low levels of short-term interest rates. Such a scenario is therefore highly unlikely to be achieved through a nominal appreciation. A more plausible scenario would be that of higher inflation induced by monetary policy, so as to engineer a real appreciation. The scenario presented here is a variant of one considered in OECD (1999c), where the effects of other possible market shocks and policy measures on the world economy have also been examined.

currencies against the US dollar. This implies no change in other currencies' bilateral exchange rates -- in particular the euro-yen exchange rate -- although this is not so in effective terms, as the weight of the US dollar varies across countries.

37. The outcome of a dollar crisis scenario is reported in Figure 10. As said earlier, the 30 per cent reduction in the effective dollar exchange rate relative to baseline from 2000 onwards is driven by concerns about the worsening US external position. The decline in the dollar is assumed to translate into a fall by 25 per cent in US stock markets, reflecting the same loss of investor confidence. In turn, the correction in US equity markets is assumed to be accompanied by drops of about half as much in markets in major economies outside the United States.

(Figure 10. Simulation of a 30 per cent effective depreciation of the US dollar)

38. The impact of the dollar depreciation has an immediate stimulatory effect on US net exports. This is to a large extent offset by the impact on private demand of the fall in financial wealth, resulting in changes in real GDP growth in the first two years of the simulation compared with baseline. However, in the absence of a timely and appropriate monetary policy response, the dollar weakening adds about 1½ per cent to annual inflation over a fairly prolonged period (reflecting both higher import prices and a larger positive output gap). Consequences for areas outside the United States are substantial. In the euro area the currency appreciation combined with the negative wealth effect subtracts about ¾ per cent to both real output growth and inflation in each of the first two years of the simulation. In Japan, the impact is substantially larger, with real growth almost 1½ per cent lower and inflation 1 per cent lower in those years.

39. A pick up in inflation to above 3¾ per cent in the near term in the United States and an inflation decline in the range of 1 per cent in the euro area would most likely induce responses from monetary authorities in both regions. In Japan, notwithstanding lower rates of growth and inflation pointing in practice to a period of deflation, monetary authorities are faced with the impossibility of adjusting short-term interest rates downwards given that these are already at their zero nominal floor at the beginning of the shock. In the United States and the euro area where monetary policy adjustments are possible, a feedback rule from inflation and output to short-term real interest rates has been built into the simulation.²¹ Indeed, maintaining short-term interest rates constant in real terms (line shown as “without monetary policy response” in Figure 10) -- implying an increase in nominal rates of about 200 basis points in the United States and a decline of about 100 basis points in the euro area in 2000 -- would be insufficient for inflation and GDP to return quickly to their baseline levels. Hence, interest rates are assumed to adjust further to ensure that this does take place.

40. In the euro area, this leads to a further lowering of interest rates (of about 200 basis points) in order to offset the disinflationary effects of the euro appreciation and the negative wealth effect and their adverse impact on GDP (line shown as “with monetary policy response” in Figure 10). Similarly, but in the opposite way, monetary tightening in the United States (equivalent to a further increase of about 150 basis points) and the weakening stock market play an important role in moderating inflation and also in stabilising real GDP growth at or near the baseline. Given monetary authorities' absence of room for manoeuvre, Japan suffers most significantly from the fall in net exports and real GDP due to the yen appreciation, while deflation remains throughout (Figure 10).

21. Such rules, an example of which is the Taylor (1993) rule, can shed light on the current and prospective level of interest rate developments and they have become widely used to assess the level of policy-controlled interest rates (BIS, 1998 and IMF, 1998).

41. The above policy response leads to a substantial widening in interest differentials between the United States and the euro area and Japan. It is nonetheless assumed that this opening in the differential has little or no impact on exchange rates over five years, as net external positions continue to play a dominant role in exchange rate expectations, since it is only over that time horizon that US net external assets stabilise at about 24 per cent of GDP, i.e. about 10 percentage points lower than in the baseline. As a counterpart, the cumulated Japanese current account surplus is about 5 percentage points lower than in the baseline, while that of euro area also declines by about the same amount.

42. Assuming that monetary policy credibility effects result in lower inflation expectations, one might expect a much faster decline in interest rates towards baseline levels in the United States with a parallel return of inflation towards baseline levels. In the same vein, euro area interest rates would not need to remain below baseline for such a prolonged period. If such a path for price expectations then fed back into the expected exchange rate equation, this would ultimately lead to some renewed effective appreciation of the dollar, while the real effective exchange rate might remain at its baseline level. Altogether, this would permit a less costly adjustment in terms of the impact on net exports and real GDP in all areas.

43. The above scenario illustrates, however, that even a sharp correction in the dollar exchange rate, consistent with a substantial reduction in the external imbalances, would have, with an appropriate response from monetary policy, limited effects on the euro area economy. Real GDP growth, in particular, would remain close to the baseline, as the easier stance of monetary policy would balance the effects of the euro appreciation. The possibility that this stance, and perhaps the competitive pressure of a weaker dollar, might lead to an increase in investment and productive capacity beyond that resulting from the parameters of the Interlink model (where technical progress is exogenous) cannot be excluded. This might produce a higher growth path for the euro area and possibly open a further channel for the reduction of external imbalances. As the evidence about this possibility is extremely limited, it is not explicitly considered here. However, the possibility that faster progress in the reform of product and labour markets might lead to a reduction in the structural unemployment rate in the euro area are examined in the next section

3.4 *Assuming faster progress in structural reform in the euro area*

44. As mentioned earlier, the simulations discussed above are based on the assumption that the euro area structural characteristics do not undergo major changes over the next five years. In particular the pace of labour and product market reform do not yield a significant reduction in the euro area NAIRU or, to put it differently, a significant up-tick in the level of potential output. The relatively slow pace of implementation of structural reform has sometimes been cited as one factor underlying the recent weakness in the euro exchange rate. The argument advanced is that foreign investors remain uncertain about the future potential rate of growth of the euro-area economy, given the persistence of structural rigidities, and thus prefer to invest in countries where expected rates of return are higher. If structural reforms were accelerated in the euro area so as to ultimately translate into a drop in the estimated value of the NAIRU of about 2 percentage points (i.e. a decline from 8½ to 6½ per cent), this would provide scope for the euro area to grow faster over the medium-term without generating inflationary pressure. An alternative scenario incorporating such a decline in the euro-area NAIRU has been constructed using the same set of assumptions as in the original baseline (i.e., closing of the output gap and achievement of stated monetary and fiscal objectives). A lower NAIRU would allow the euro area to grow (substantially faster over the medium term than currently embodied in the reference baseline), at a pace only marginally lower than the United States (Figure 11). This rebalancing in growth prospects would work towards some limited appreciation of the euro *vis-à-vis* the dollar and the yen, which would also contribute to some correction in external imbalances.

(Figure 11. Simulation of a lower euro-area NAIRU)

45. Compared with the dollar depreciation scenario, the lower NAIRU scenario has somewhat more positive implications for prospects in Japan. Faster euro area growth and euro appreciation against the yen contributes to raising Japan's net exports and real GDP growth. Implications for the United States are also positive as real GDP growth remains close to baseline but with a lower current account deficit. However, these positive effects on the major OECD areas remain limited, indicating that even substantial changes in the euro area's structural policy should not be seen as a major factor in redressing present world external imbalances.

4. Conclusions

46. One year ago, most economic observers predicted that "fundamentals" were such that the euro was set to appreciate. In the event the euro has depreciated against most major currencies. Numerous factors can influence exchange rates developments, both over the short and the longer term. Identifying determinants that drive short-term movements as well as those that impinge on the equilibrium value of the euro is a notoriously difficult task and empirical estimates tend to vary widely. While several forces appear to have underpinned the recent depreciation of the euro since early 1999, the difference in cyclical conditions in the United States and the euro area seems to have been a dominant factor. Considered over a long-term perspective, recent movements in the euro do not appear as dramatic as recent bilateral changes would tend to suggest: the euro is presently at about its past 5-year average level expressed in nominal effective terms, while in real terms, it is above the low levels reached in the 1980s.

47. Predicting the future value of the euro with any precision is impossible and this paper has made no attempt at it. Rather it has tried to gauge the future direction of the euro area economy given the known macroeconomic policy stance in the three major OECD regions and the euro area's structural characteristics. In this context, the OECD Interlink model has been used to analyse the implications of potentially large changes in exchange rates and of accelerated structural reforms in the euro area.

48. The results of this analysis show that even a sharp correction in the dollar exchange rate driven by concerns about the worsening US external position, would have, with an appropriate monetary policy response, only limited effects on the euro area economy over the medium run. Furthermore, there is scope for the euro area to grow faster, without inflationary pressures, if a more rapid implementation of structural reforms translates quickly into a lower NAIRU. Such higher rates of growth in the euro area are however likely to yield only limited spillovers in the United States and Japan, and would in no way be sufficient to significantly reduce external imbalances.

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Table 1. **Developments in euro exchange rates**

		period averages				
		US\$/Euro	¥/Euro	£/Euro	Nominal effective rate ¹	Real effective rate ¹
1995		1.32	124.3	0.84	100.0	100.0
1996		1.29	140.4	0.83	102.0	99.1
1997		1.13	137.0	0.69	95.5	90.4
1998		1.11	145.6	0.67	101.3	92.8
1999	Q1	1.12	130.8	0.69	103.8	93.2
	Q2	1.06	127.8	0.66	100.0	89.4
	Q3	1.05	119.1	0.65	98.9	88.2
	Q4	1.04	108.6	0.64	97.3	..
1999	July	1.04	124.1	0.66	98.5	88.1
	August	1.06	120.3	0.66	99.7	88.9
	September	1.05	112.9	0.65	98.4	87.5
	October	1.07	113.5	0.65	99.5	88.1
	November	1.03	108.5	0.64	97.2	..
	December	1.01	103.8	0.63	95.3	..
Memo Item: Percent change since the launch of the Euro (4/1/99)						
		-14.2	-22.4	-11.9	-9.6 ²	-7.0 ³

1. Based on the OECD measure of the nominal and real effective exchange rates, 1995=100.

2. Per cent change between January 1999 and December 1999.

3. Per cent change between January 1999 and October 1999.

Source: OECD.

Table 2. **Weights underlying the calculation of effective exchange rates**¹

	Euro area	United States	Japan
Euro area	..	16.02	15.34
United States	18.08	..	26.85
Japan	9.91	16.55	..
United Kingdom	21.48	4.58	3.59
Canada	1.13	18.90	1.35
Australia	0.41	0.52	1.20
Czech Republic	2.20	0.10	0.05
Denmark	2.45	0.26	0.36
Greece	0.72	0.06	0.03
Hungary	2.04	0.11	0.09
Iceland	0.04	0.01	0.01
Korea	2.38	3.37	6.16
Mexico	0.52	10.73	0.39
New Zealand	0.07	0.12	0.44
Norway	1.18	0.23	0.28
Poland	2.44	0.12	0.05
Sweden	5.17	0.95	1.17
Switzerland	7.25	1.18	1.61
Turkey	1.80	0.26	0.08
Russia	2.04	0.58	0.90
Chinese Taipei	2.70	4.52	5.96
Hong Kong	2.58	3.47	3.66
Singapore	2.23	2.99	3.55
China	4.58	6.26	14.27
Indonesia	0.92	0.87	2.44
Malaysia	1.44	2.20	3.55
Philippines	0.58	1.22	1.92
Thailand	1.14	1.44	3.25
India	1.25	0.89	0.57
Argentina	0.25	0.23	0.10
Brazil	1.00	1.27	0.79

1. Weights shown here are 1997 weights. These are based on bilateral exports and imports of manufactured goods. They capture competition faced by the three major OECD areas in their own market as well as in foreign markets from both domestic producers and exporters from third countries. In the calculation of effective rates the OECD uses weights from 1970 to 1997. For more details see Durand *et al.* (1998).

Table 3. **Correlation coefficients between the real euro exchange rate and real differential¹**

	1971q1 to 1980q3	1980q3 to 1985q1	1985q1 to 1990q4	1990q4 to 1999q3
Euro/\$ vs. euro-US real short-term interest rate differential	-0.44	-0.40	-0.82	-0.65
Euro/Yen vs. euro-Japan real short-term interest rate differential	0.39	-0.26	-0.52	0.17
Euro/\$ vs. euro-US real long-term interest rate differential	-0.55	-0.73	-0.93	-0.79
Euro/Yen vs. euro-Japan real long-term interest rate differential	0.55	-0.03	-0.38	0.20
<i>Memorandum item:</i>				
Euro/\$ vs. euro area net foreign asset position ²	..	-0.43	-0.83	0.71
Euro/Yen vs. euro area net foreign asset position ²	..	0.56	-0.66	-0.34
DM/\$ vs. German-US real short-term interest rate differential	-0.44	-0.69	-0.68	-0.24
DM/Yen vs. German-Japan real short-term interest rate differential	-0.08	0.34	-0.01	-0.09
DM/\$ vs. German-US real long-term interest rate differential	-0.61	-0.71	-0.89	-0.34
DM/Yen vs. German-Japan real long-term interest rate differential	0.02	0.14	0.21	-0.21
<i>Memorandum item:</i>				
DM/\$ vs. German net foreign asset position ²	-0.83	0.76	-0.78	-0.21
DM/Yen vs. German net foreign asset position ²	0.86	-0.63	-0.12	0.81

1. The four periods correspond to periods of either major real appreciation or depreciation of the bilateral euro exchange rate *vis-à-vis* the US dollar and Japanese Yen. Real exchange rates are based on CPI.
2. Calculated as cumulated current account balances over the full period examined, as a percentage of GDP.

Source: OECD.

Table 4. **Short-term projections for the euro area**

	Percentage changes from the previous year ¹						
	1980-85	1986-91	1992-97	1998	1999	2000	2001
Private consumption	1.2	4.1	1.0	2.9	2.4	2.6	2.7
Government consumption	2.1	3.1	1.0	1.3	1.6	1.1	1.0
Gross fixed investment	-1.3	6.2	0.3	4.3	4.6	4.3	4.4
Public	0.7	4.8	-3.0	3.5	3.8	2.8	2.7
Private residential	-2.7	3.4	1.8	-0.2	1.9	3.3	3.0
Private non-residential	-1.0	7.8	0.3	6.6	5.9	5.1	5.3
Final domestic demand	0.9	4.3	0.8	2.9	2.7	2.7	2.7
Stock building ²	-0.1	0.0	0.1	0.5	-0.1	0.0	0.0
Total domestic demand	0.8	4.3	0.9	3.3	2.6	2.6	2.7
Exports	5.6	2.8	9.6	4.3	0.9	6.5	6.3
Imports	0.9	7.3	6.1	8.3	4.0	5.9	6.2
Foreign balance ²	0.6	-0.5	0.6	-0.5	-0.5	0.2	0.2
GDP	1.4	3.8	1.5	2.8	2.1	2.8	2.8
Industrial production	0.3	2.7	1.5	4.0	0.5	3.3	3.1
Private consumption deflator	8.5	3.9	2.9	1.4	1.3	1.7	1.7
GDP deflator	7.9	4.1	2.5	1.6	1.3	1.5	1.6
Current account balance ³	-0.4	0.7	0.6	1.3	0.8	0.7	0.8
Employment	-0.4	2.9	-0.2	1.5	1.5	1.2	1.1
Labour force	0.6	2.4	0.3	0.6	0.5	0.5	0.5
Unemployment rate ⁴	8.6	9.6	11.2	11.1	10.2	9.6	9.1
Personal savings ratio (per cent)	14.7	12.9	13.8	11.5	11.4	11.3	11.2

1. The 1999 figures are OECD estimates.

2. Growth as a percent of GDP in the previous year.

3. Actual balance as a percent of GDP. Intra euro area trade in goods and services excluded, but no adjustment has been possible for investment income and transfers due to the lack of required information.

4. Level as a percent of labour force.

Source: *OECD Economic Outlook*, No. 66.

Table 5. **Volatility of bilateral and effective exchange**

	Standard deviation of quarterly changes ¹		
	Bilateral versus US\$ ²	Nominal effective exchange rates ³	Real effective exchange rates ³
Germany	5.6	2.1	2.0
France	5.3	2.0	1.9
Italy	5.7	2.9	2.8
Netherlands	5.5	1.6	1.7
Austria	5.5	1.1	1.1
Euro area	4.6	2.9	2.8
United States	..	2.8	2.9
Japan	5.3	4.6	4.5
United Kingdom	5.9	4.0	4.4

1. Volatility is measured by the standard deviation of the quarterly growth rate, defined as the difference of the natural logarithm of the series multiplied by 100 over the period 1970q2 to 1999q3.

2. Bilateral exchange rates are national currencies per US dollar.

3. Based on the OECD measures of the nominal and real effective exchange rates, where the real effective exchange rates are based on CPI.

Source: OECD.

Table 6. The euro as an international currency

	Amounts outstanding, year end			Net issues		
	1996	1997	1998	1999q1	1999q2	1999q3
International bonds and notes						
Total issues in billion US\$	2975	3332	4100	231	332	286
Selected currencies	Shares of total			Levels in billion US\$		
US dollar	38.1	43.8	45.2	56.9	46.4	40.0
Japanese yen	15.9	13.7	11.7	-4.9	-1.1	2.3
Euro area currencies	25.5	23.7	23.9	38.2	43.0	50.4
Pound sterling	7.6	8.1	8.0	7.6	8.0	7.2
International money market instruments						
Total issues in billion US\$	172	184	194	35	-8	23
Selected currencies	Shares of total			Levels in billion US\$		
US dollar	56.9	57.3	57.3	6.9	-2.8	-0.5
Japanese yen	3.7	3.6	2.4	-1.2	0.1	0.1
Euro area currencies	15.7	16.1	15.7	28.5	-6.5	18.0
Pound sterling	5.1	7.1	8.0	0.8	2.4	1.8
Official holdings of foreign exchange						
Total, in billion US\$	1553	1599	1635			
Selected currencies	Shares of total					
US dollar	53.7	54.2	56.9			
Japanese yen	5.2	4.5	4.9			
ECU	5.6	4.8	0.7			
Euro area currencies ¹	13.8	13.2	13.0			
Pound sterling	3.0	3.2	3.7			
Others plus unspecified	18.7	20.1	20.8			

1. Deutschmark, French franc and Dutch guilder only.

Source: BIS, *Quarterly Review: International Banking and Financial Market Developments*, various issues; IMF, *Annual Report*, 1999.

Table 7. **Monetary Conditions in the major OECD regions**

	Period average data										
	Q1-98	Q2-98	Q3-98	Q4-98	Q1-99	Q2-99	Q3-99	Sep-99	Oct-99	Nov-99	Dec-99
Euro area											
Nominal short-term interest rates	4.0	3.9	3.8	3.4	3.1	2.6	2.7	2.7	3.4	3.5	3.5
Real short-term interest rates ¹	2.5	2.2	2.5	2.4	2.2	1.6	1.5	1.4	2.0	1.9	1.8
Nominal long-term interest rates	5.1	5.0	4.6	4.1	4.0	4.3	5.1	5.2	5.5	5.2	..
Real long-term interest rates ¹	3.7	3.4	3.3	3.1	3.1	3.2	3.8	3.9	4.1	3.6	..
Interest rate spread ²	1.2	1.1	0.8	0.7	0.9	1.6	2.4	2.5	2.1	1.7	..
Nominal M3 growth	4.7	5.1	4.5	4.5	5.5	5.7	6.3	6.6	6.6
Differential between Euro area and the United States											
Nominal short-term interest rates	-1.1	-1.1	-1.0	-0.8	-1.3	-1.8	-1.9	-1.9	-1.5	-1.6	-1.7
Real short-term interest rates ¹	-1.1	-1.1	-0.7	-0.3	-0.6	-0.8	-0.8	-0.6	-0.3	-0.4	-0.3
Nominal long-term interest rates	-0.5	-0.6	-0.6	-0.5	-1.0	-1.3	-0.8	-0.7	-0.6	-0.8	..
Real long-term interest rates ¹	-0.5	-0.6	-0.3	0.0	-0.2	-0.2	0.3	0.7	0.5	0.4	..
Interest rate spread ²	0.6	0.5	0.4	0.3	0.3	0.5	1.1	1.3	0.9	0.8	..
United States											
Nominal short-term interest rates	5.1	5.0	4.8	4.3	4.4	4.5	4.6	4.7	4.9	5.1	5.2
Real short-term interest rates ¹	3.6	3.4	3.2	2.7	2.7	2.3	2.3	2.0	2.3	2.3	2.1
Nominal long-term interest rates	5.6	5.6	5.2	4.7	5.0	5.5	5.9	5.9	6.1	6.0	6.2
Real long-term interest rates ¹	4.1	4.0	3.6	3.1	3.3	3.4	3.5	3.3	3.5	3.3	3.1
Interest rate spread ²	0.5	0.6	0.4	0.4	0.6	1.1	1.2	1.2	1.2	1.0	1.0
Nominal M2 growth	9.5	10.1	9.9	10.8	10.1	9.0	8.2	7.5	7.3
Japan											
Nominal short-term interest rates	1.0	0.7	0.7	0.6	0.5	0.1	0.1	0.1	0.3	0.4	0.3
Real short-term interest rates ¹	-1.0	0.3	0.9	0.1	0.6	0.3	0.1	0.3	1.2	1.2	0.7
Nominal long-term interest rates	1.9	1.6	1.4	1.1	1.9	1.5	1.8	1.8	1.8	1.8	1.8
Real long-term interest rates ¹	-0.1	1.3	1.6	0.6	2.0	1.8	1.8	1.9	2.7	2.6	2.2
Interest rate spread ²	0.9	1.0	0.6	0.4	1.5	1.5	1.7	1.7	1.5	1.4	1.5
Nominal M2+CDs growth	4.6	4.2	4.3	4.6	4.2	4.1	3.4	2.4

1. Short-term (3-month interbank rate) and long-term (10 year government bonds) interest rates less the 12 month change in CPI.

2. The difference between long- and short-term rates.

Sources: OECD, Bloomberg, ECB.

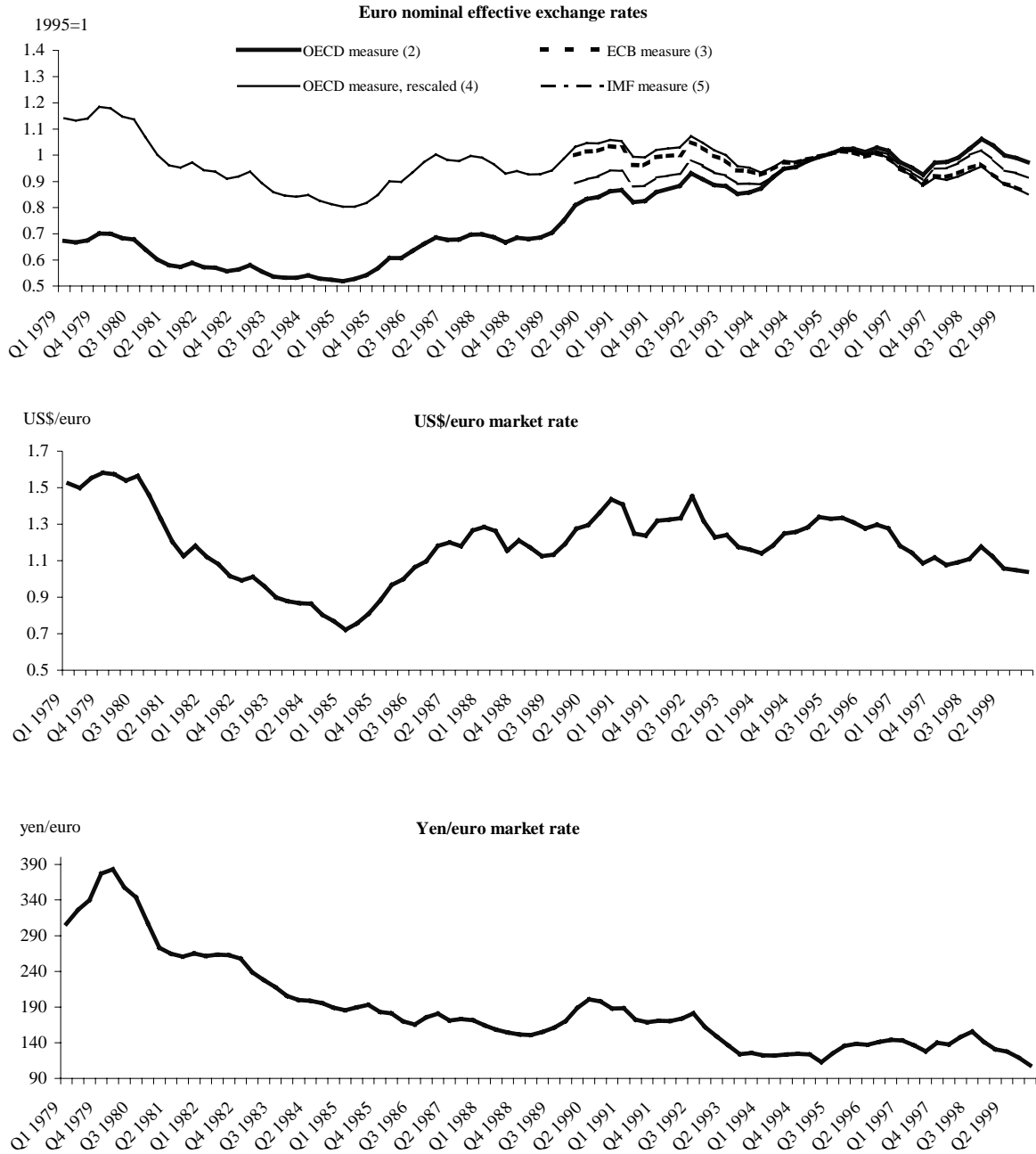
Table 8. **The OECD medium-term reference scenario**

		<i>Percentage change from previous period</i>						
		1999	2000	2001	2002	2003	2004	2005
United States								
	Real GDP growth	3.8	3.1	2.3	2.0	3.0	3.4	3.4
	Inflation	1.6	2.3	2.4	2.3	2.2	2.2	2.1
	Short-term nominal interest rate	4.6	5.7	6.1	5.5	4.8	4.8	4.8
	Current account (% GDP)	-3.7	-4.3	-4.2	-4.0	-3.9	-3.8	-3.7
Japan								
	Real GDP growth	1.4	1.4	1.2	2.1	2.2	1.7	1.8
	Inflation	-0.3	-0.3	-0.3	0.2	0.5	0.5	0.5
	Short-term nominal interest rate	0.3	0.3	0.8	1.8	2.3	2.8	3.0
	Current account (% GDP)	2.7	2.8	3.0	3.0	2.9	2.9	2.9
Euro area								
	Real GDP growth	2.1	2.8	2.8	2.6	2.5	2.4	2.3
	Inflation	1.3	1.7	1.7	1.7	1.7	1.6	1.6
	Short-term nominal interest rate	2.9	3.3	4.3	4.3	4.3	4.3	4.3
	Current account (% GDP)	0.8	0.7	0.8	0.9	0.9	1.0	1.1
Total OECD								
	Real GDP growth	2.9	2.9	2.6	2.5	2.9	2.9	2.9
	Inflation ¹	1.8	2.1	2.1	2.0	2.0	1.9	1.9

1. Excluding Turkey.

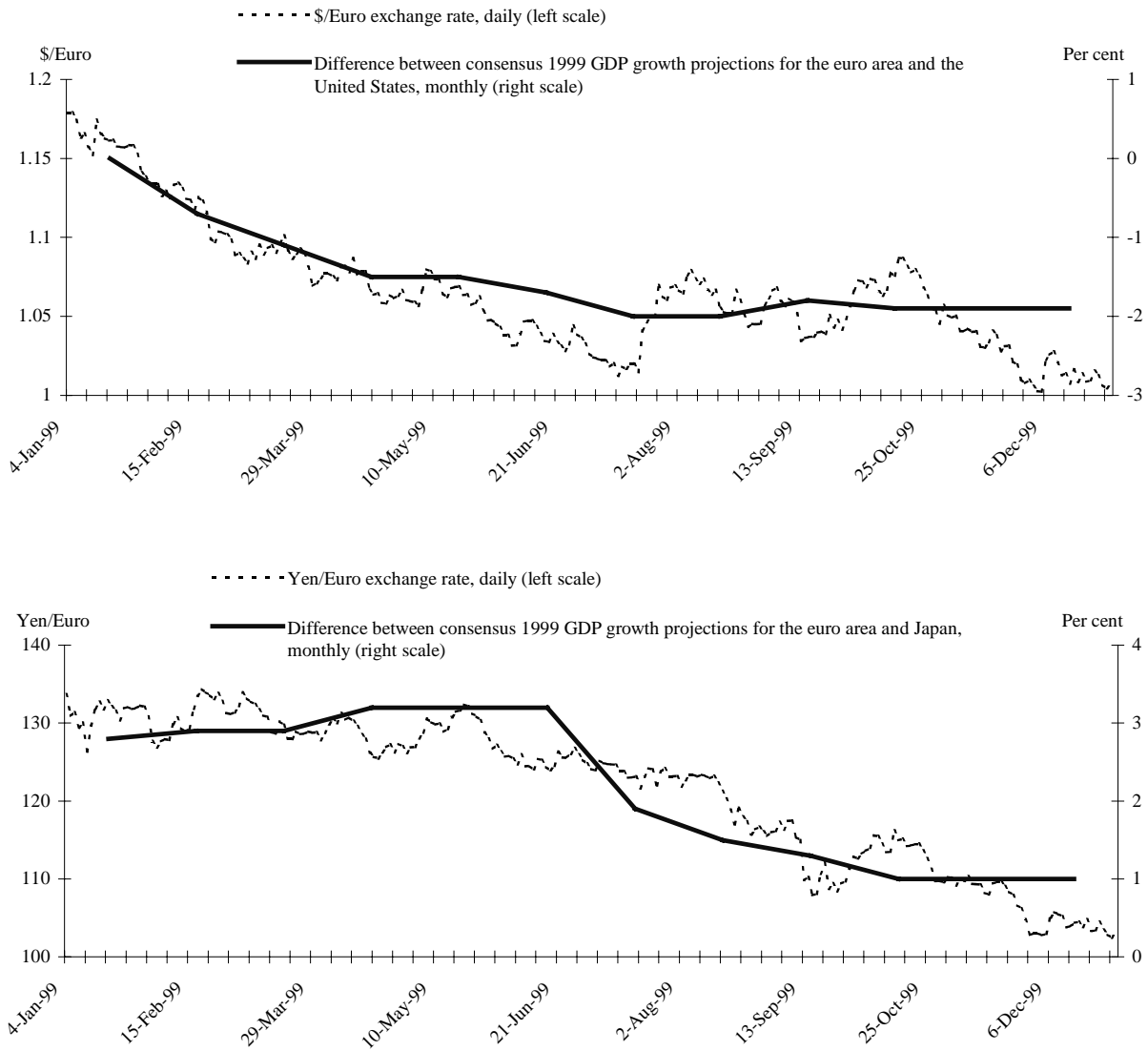
Source: *OECD Economic Outlook*, No. 66.

Figure 1. Euro exchange rates¹

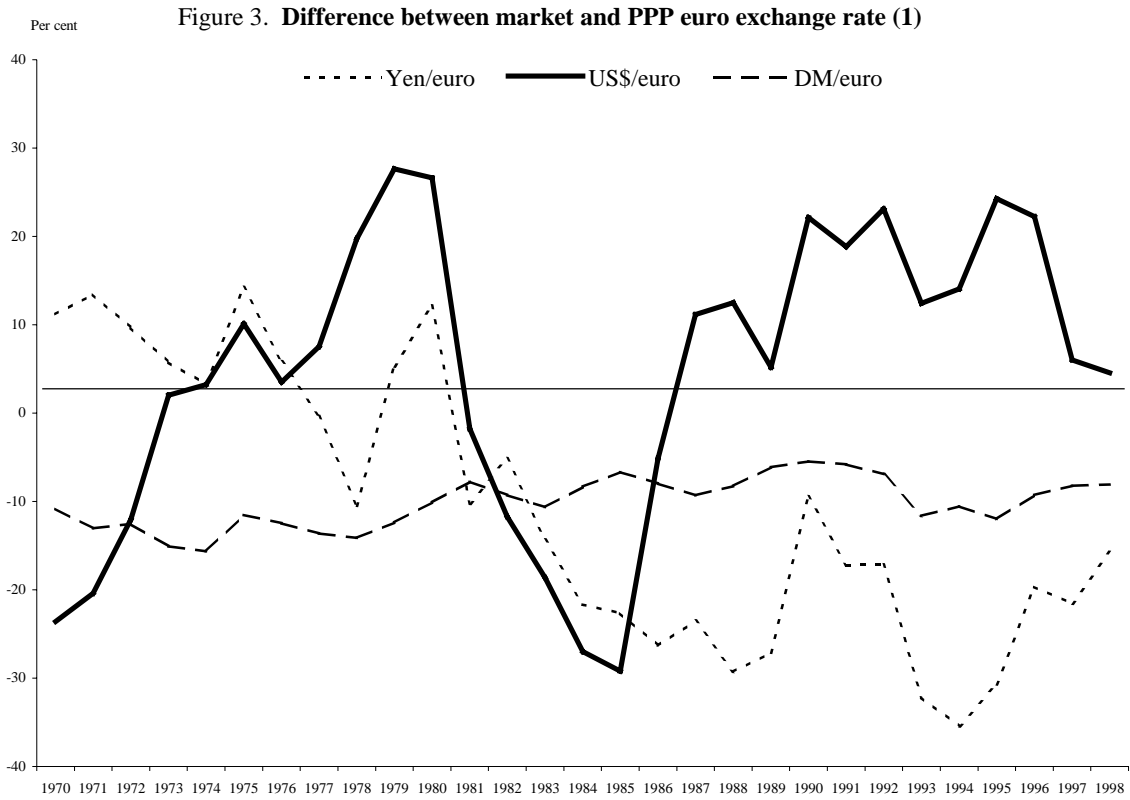


1. Rates are quarterly averages.
 2. Calculated with moving weights and 30 partner countries.
 3. Calculated with fixed weights and 13 partner countries.
 4. Calculated as the OECD measure, rescaled to use fixed weights and 13 partner countries.
 5. Calculated with fixed weights and partner countries with trade weights greater than 1 percent.
- Source: OECD.

Figure 2. Cyclical divergence and euro market exchange rates

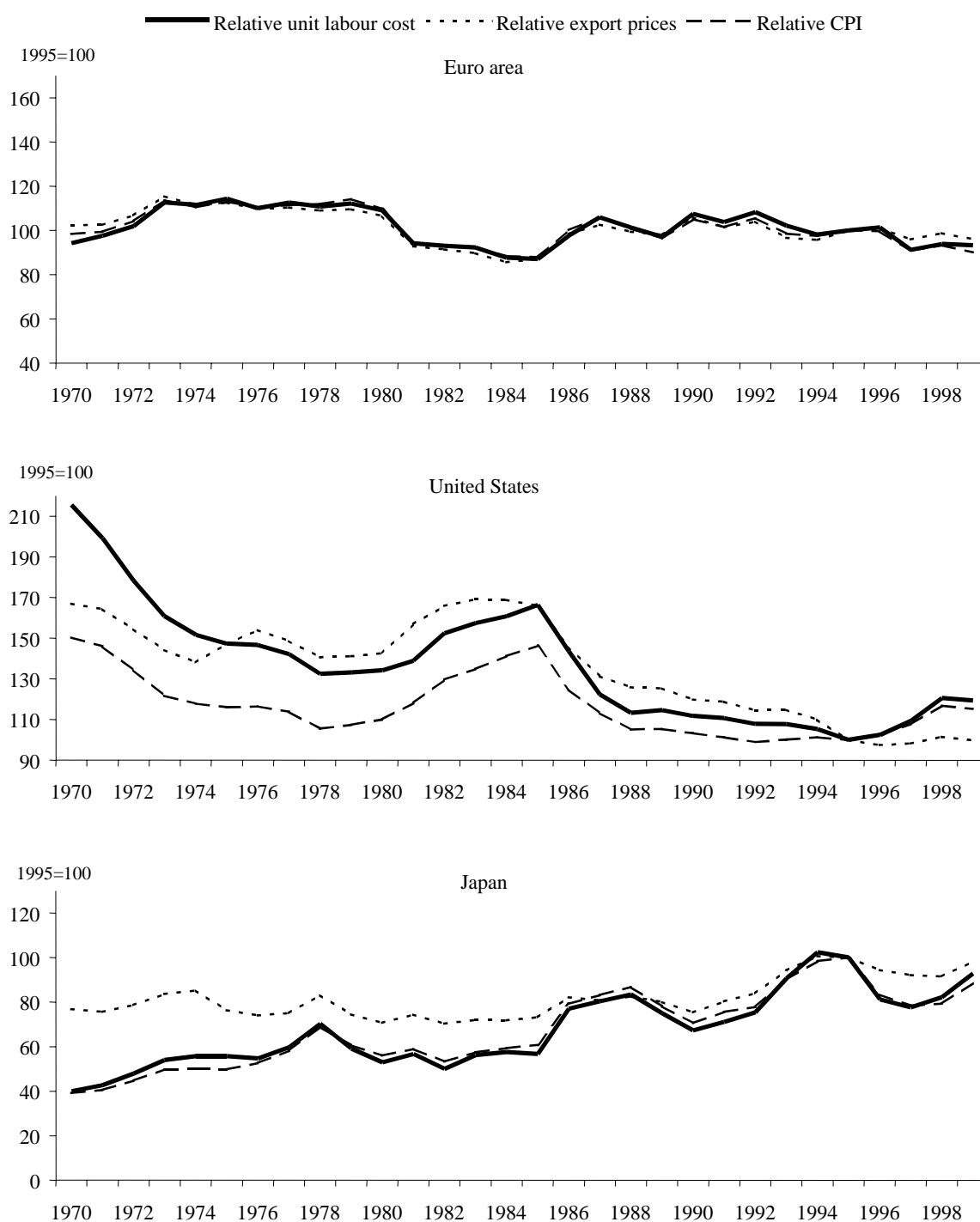


Source : OECD, ECB, Economist monthly poll (various issues).



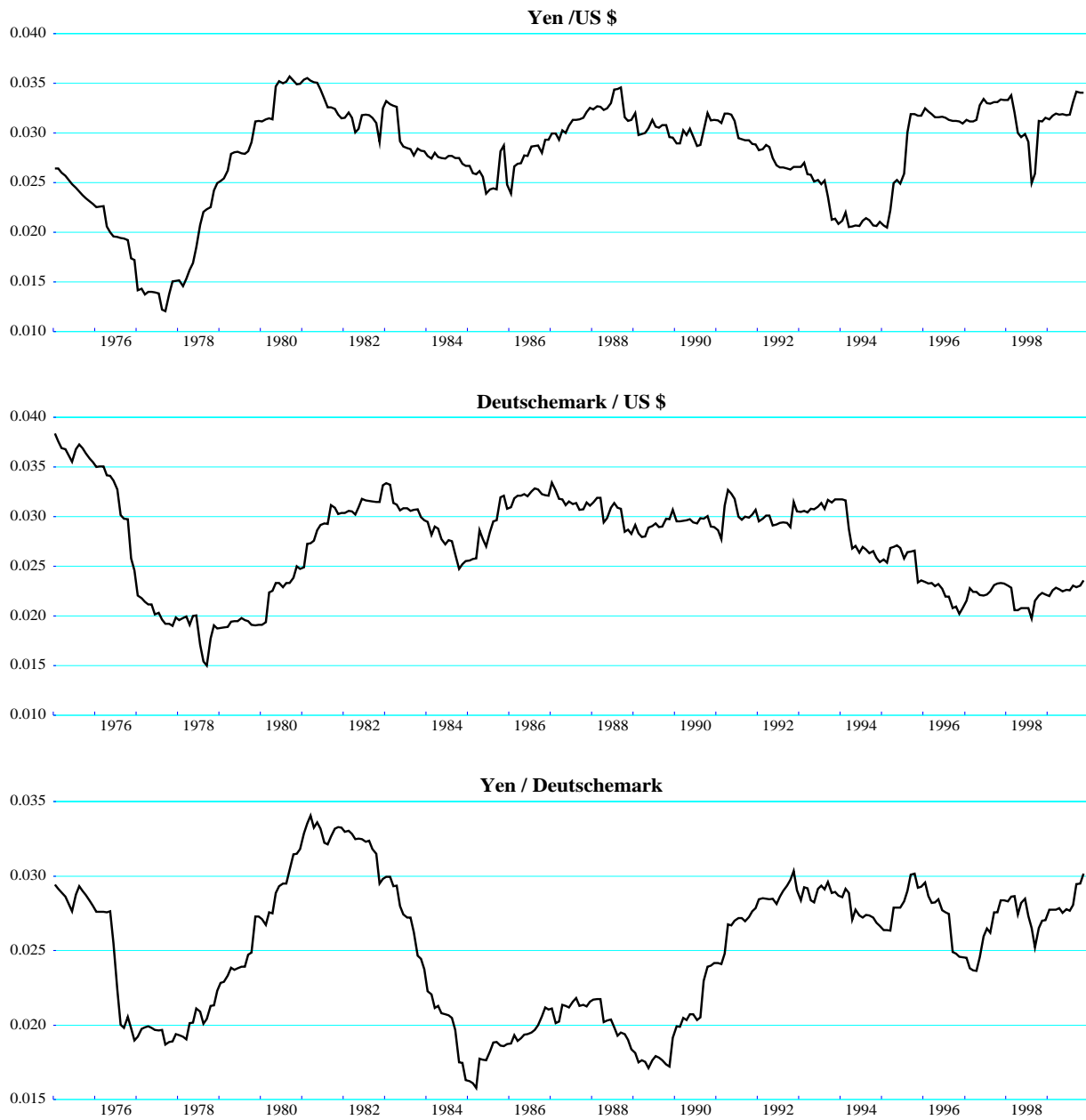
1. Difference between the market exchange rate and the PPP exchange rate, expressed as a percentage of the PPP exchange rate. A negative value implies an undervalued market rate compared with the PPP rate.
 Source: OECD.

Figure 4. Trends in competitiveness



Source: OECD Economic Outlook, No. 66.

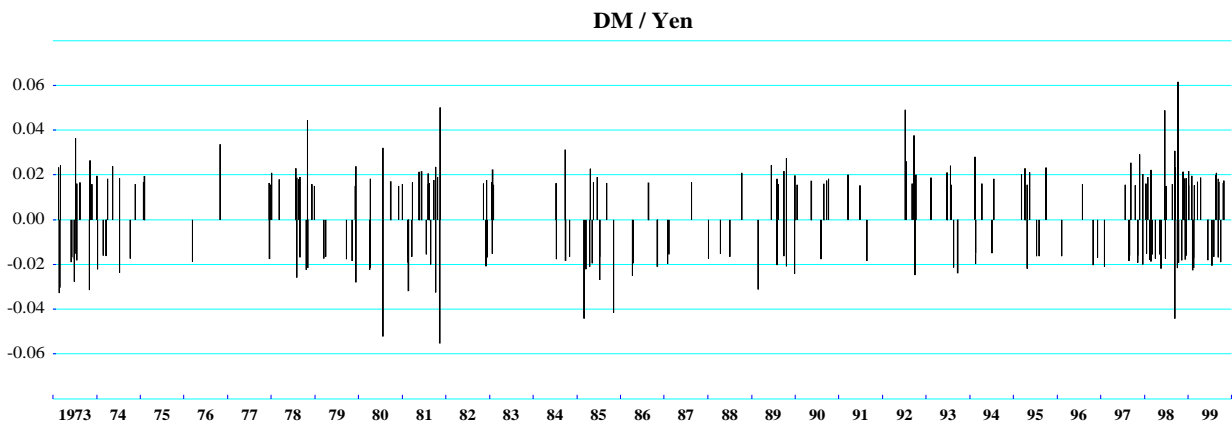
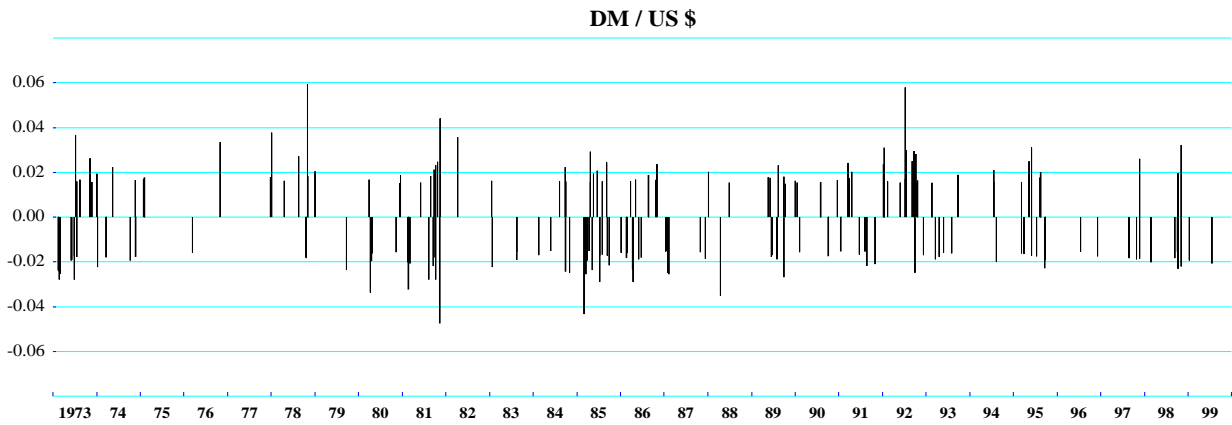
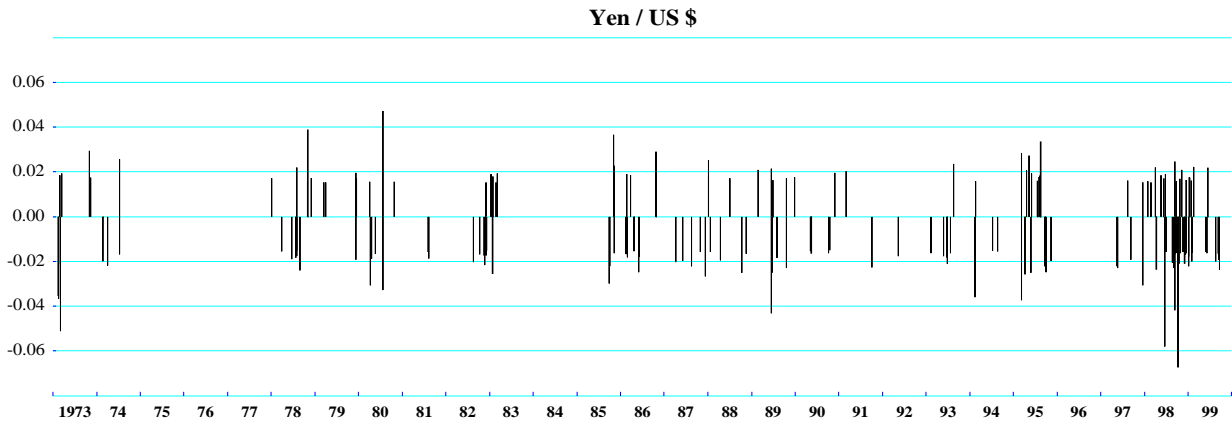
Figure 5. Variance of monthly changes in nominal exchange rates (1)
(3-year moving window)



1. Any month t in the graph shows the standard deviation of monthly changes in the logarithms of bilateral nominal exchange rates during the period from $t-36$ months to t , i.e. during the last three years.

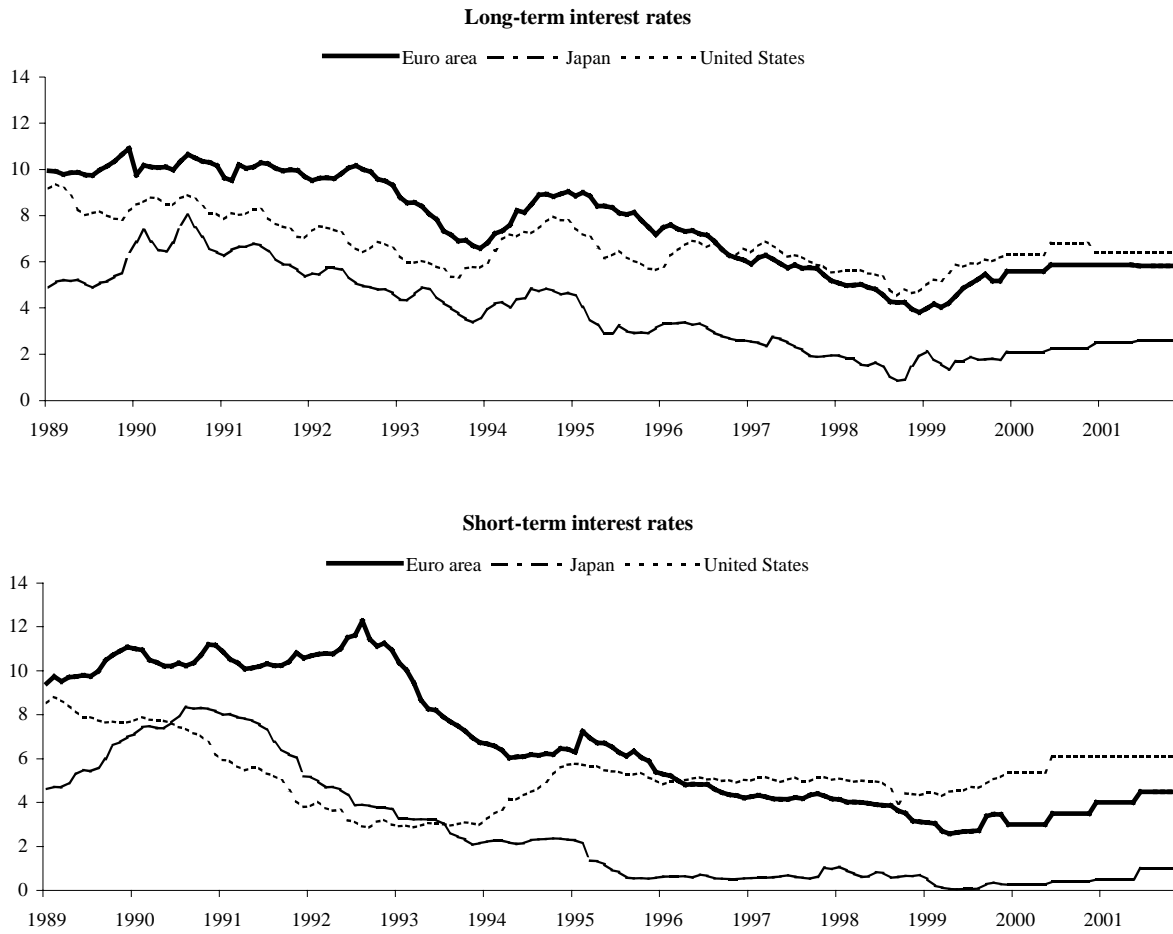
Source: OECD.

**Figure 6. Incidence of large daily changes in exchange rates
(relative changes exceeding 1.5 percentage points)**



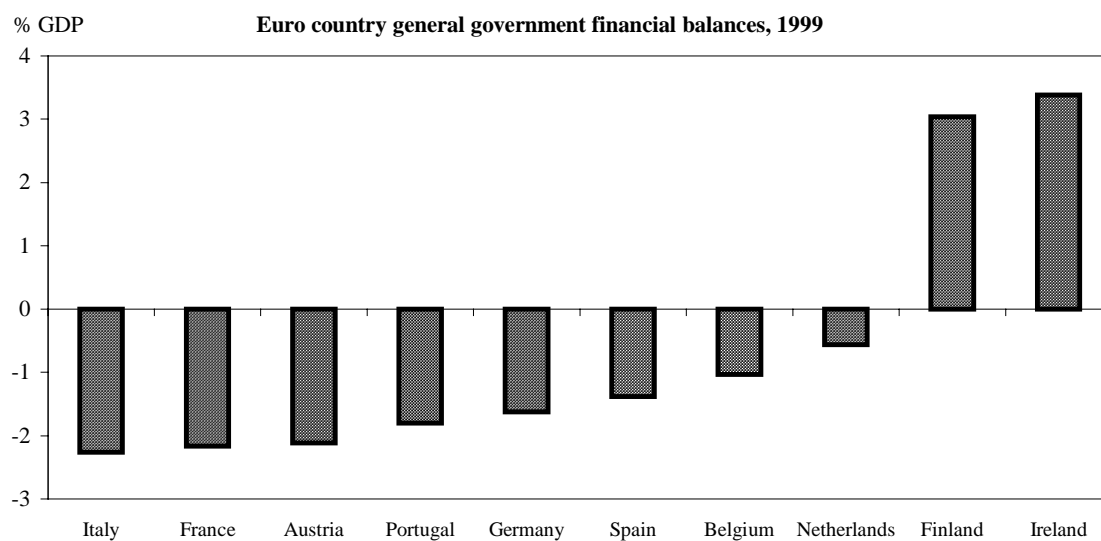
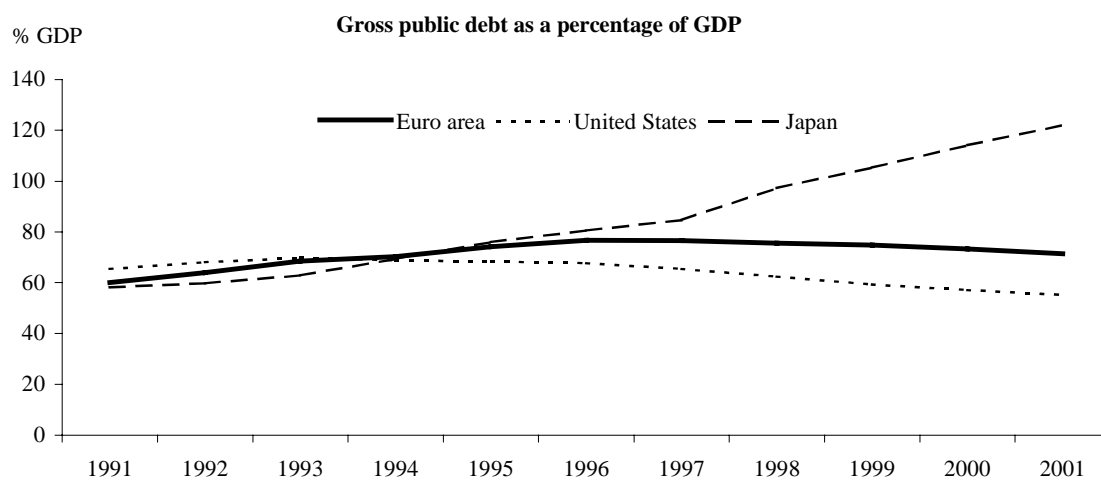
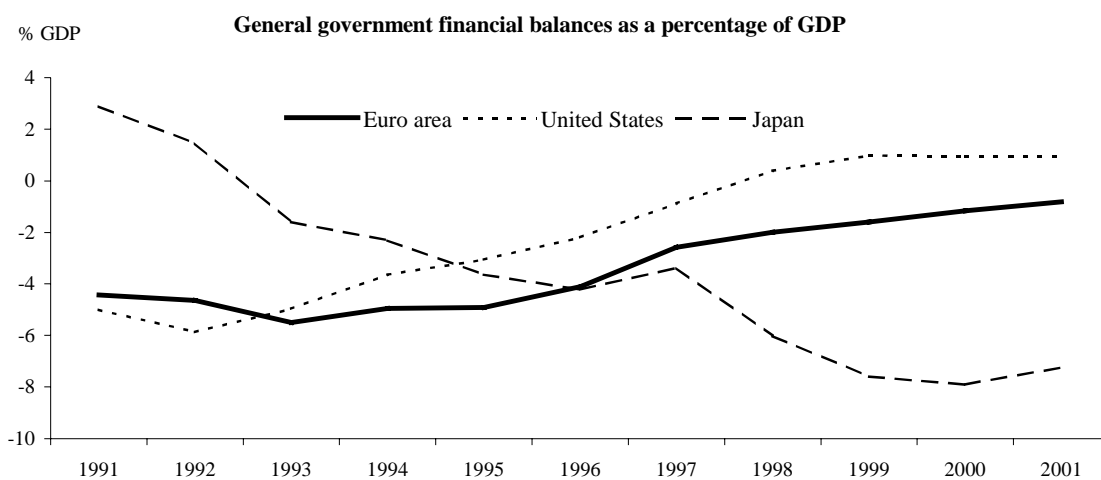
Source : OECD.

Figure 7. Nominal interest rates in major OECD regions



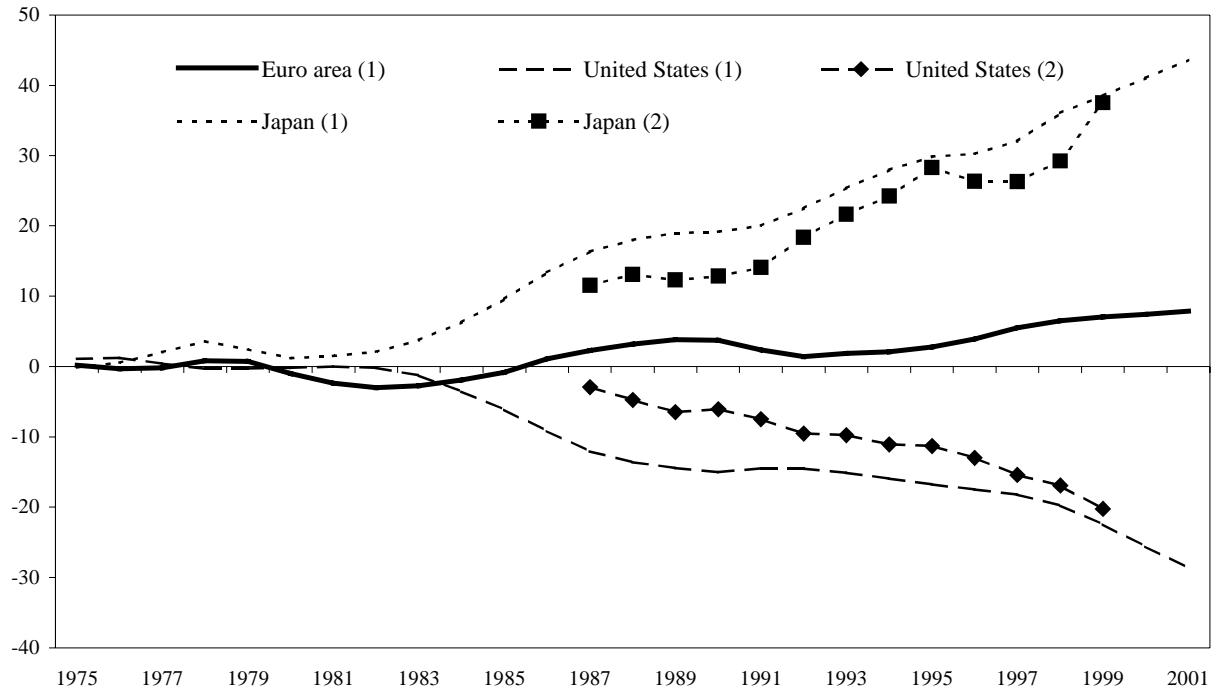
Source: ECB, Bloomberg, *OECD Economic Outlook*, No. 66.

Figure 8. Fiscal indicators in the major OECD regions



Source: OECD Economic Outlook, No. 66.

Figure 9. Net foreign asset positions as a percent of GDP ¹

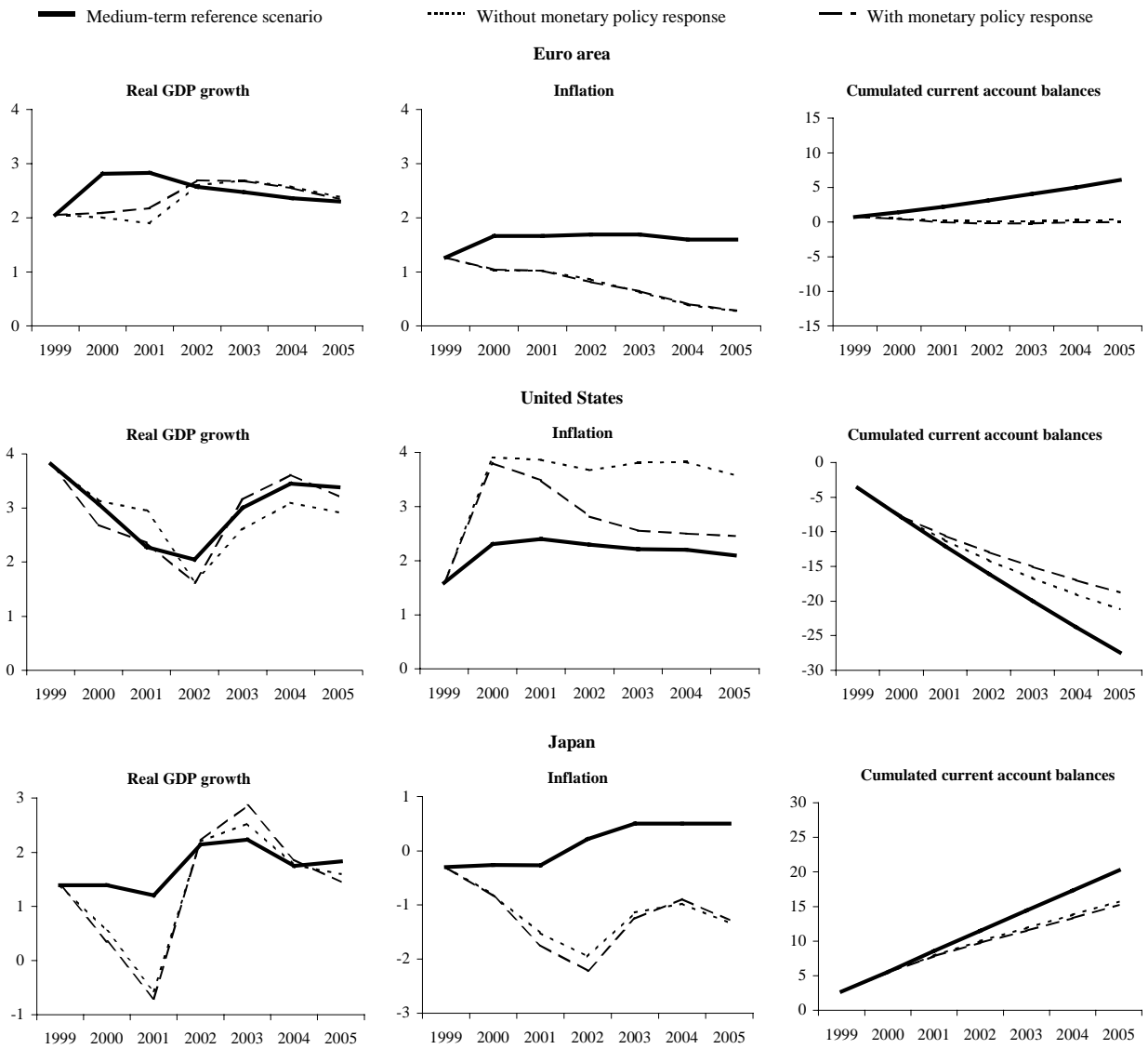


1. Calculated as the cumulated current account balances, starting in 1975.

2. Actual net foreign assets.

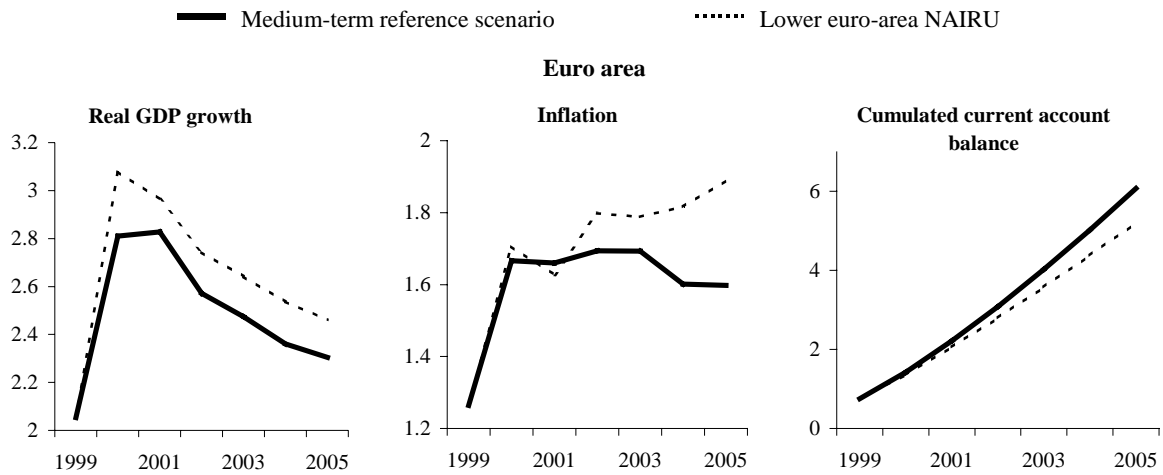
Source: OECD Economic Outlook No. 66.

Figure 10. Simulation of a 30 percent effective depreciation of the dollar



Source: OECD.

Figure 11. **Simulation of a lower euro-area NAIRU**¹



1. This simulation assumes a permanent reduction in the euro-area NAIRU, from 8.5 percent to 6.5 percent as of 2000.

Source : OECD.

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