Stability-oriented policies and developments in long-term real interest rates in the 1990s

The trend decline in long-term real interest rates since the mid-1990s appears, to a large extent, to have been a result of the pursuit of stability-oriented monetary and fiscal policies throughout the euro area within the context of the process of convergence towards Monetary Union. While acknowledging that there are many potential explanations for these developments, the credible establishment of price stability throughout the euro area has helped to reduce the uncertainty with regard to future price developments and has thereby reduced the risk premia in long-term real interest rates. Furthermore, fiscal consolidation has exerted downward pressure on real interest rates by lowering public sector demand for capital.

Looking ahead, the pursuit of a monetary policy consistent with the Eurosystem's monetary policy strategy is crucial for the lasting maintenance of price stability in the euro area and, therefore, for a continuation of a favourable environment for low risk premia embodied in long-term real interest rates. By reducing such risk premia in the real interest rate, monetary policy will contribute to improving the allocative efficiency of the capital market. This is one of many channels through which a monetary policy that credibly maintains price stability can improve overall economic welfare. This process will be complemented and supported by the pursuit of stability-oriented fiscal policies consistent with the Stability and Growth Pact.

1 Introduction – the real interest rate

The level of real interest rates is determined by the interaction of many macroeconomic factors, notably the aggregate levels of saving and investment. In this respect, private saving and investment decisions depend, on the one hand, on households' preferences regarding consumption in different periods and, on the other hand, on the technology and productive opportunities available to firms. In addition, the public sector's net saving affects the determination of the real interest rate. All these factors may change over time and are interdependent. Given these complexities, one cannot judge the prospects for real economic growth solely by observing the level of the real interest rate. Rather it is necessary to analyse the factors which influence the level of real interest rates in order to assess their implications for growth.

While explanations and interpretations of the evolution of real interest rates and their implications for overall economic performance have to take many factors into account and are often very complicated, this article focuses on one very specific factor, namely the impact of the design of monetary and fiscal policies on long-term real interest rates.

A significant degree of uncertainty is introduced into the economy by monetary policies which do not focus on the maintenance of price stability. This uncertainty is normally associated with the incorporation of higher risk premia in real rates, as investors require compensation to bear the risk. Hence, an increase in uncertainty regarding future price developments resulting from the pursuit of a poorly designed monetary policy might lead, all other things being equal, to a less efficient allocation of resources and, therefore, to a decline in overall economic welfare.

Besides generating uncertainty about the future evolution of real interest rates and thereby contributing to the magnitude of risk premia embedded in long-term real rates, fiscal indiscipline can also have an impact on real interest rates through other channels. High fiscal deficits and debt levels drive up the real interest rate, as the public sector demands a larger share of the available funds for its expenses. In addition, fiscal indiscipline could bring the sustainability of the public finances into question, generate fears of a government default and thereby lead investors to require a default risk premium on account of this possibility. In turn, the implied higher interest burden of the public

debt might force governments to increase their level of taxation, resulting in the further misallocation of resources owing to the distortions introduced by higher taxes.

In contrast to the scenarios discussed above, well-designed monetary and fiscal policies allow the capital market to allocate resources more efficiently over time. This, in turn, should raise the productive potential of the economy and improve growth and employment prospects over the medium term.

During the 1990s, and especially in the years immediately preceding the introduction of the euro in 1999, considerable progress was made in introducing and implementing stability-oriented monetary and fiscal policies throughout the euro area. In the 11 countries which now form the euro area, the convergence process driven by the fiscal and monetary criteria required for participation in Stage Three of Economic and Monetary Union (EMU) played an important role in disciplining monetary and fiscal policies during this period.

The remainder of this article describes the evolution of long-term real interest rates in the euro area over the last decade of convergence. A number of interrelationships between the trend decline in real rates and the improved monetary and fiscal policy environment during the 1990s are discussed. While the introduction and implementation of stability-oriented policies is only a partial explanation of the evolution of real interest rates over the past ten years, this episode helps to illustrate some of the benefits of a move to policies which maintain price stability and sustainable public finances.

2 Recent developments in long-term real interest rates

At the beginning of the 1990s, in a period of relatively robust economic growth, the average long-term real interest rate in the countries which now form the euro area, measured as the ten-year nominal government bond yield adjusted using current annual consumer price inflation (see Box 1 for a discussion of measurement issues), reached a level of 5-6%. While real interest rates fell significantly during the economic recession of 1993, they rebounded strongly in 1994 following a sharp upward revision of expectations for economic growth at the global level. Thereafter, during the process of convergence in the economies of the euro area in the run-up to the start of Monetary Union – a process which accelerated in the mid and late 1990s – euro area long-term real interest rates fell persistently, reaching a level of around 3% at the time of the introduction of the euro in January 1999 (see Chart 1). More recently, in 1999, the improved outlook for world economic growth has led to somewhat higher real interest rates.

Box 1

Measuring the real interest rate

The real interest rate is usually measured by correcting the nominal interest rate for anticipated changes in the price level. However, since inflation expectations cannot be observed directly, measuring the real interest rate is difficult. Moreover, measures of the real interest rate differ according to the maturity of the interest rate chosen.

As firms' capital requirements and investment horizons are typically longer-term, the real interest rate most relevant for firms' investment decisions is a long-term rate. Similarly, the bulk of household saving (e.g. for retirement) is also long-term and one would therefore expect a long-term real interest rate to be more relevant for household savings decisions than a short-term rate. Although there are some differences across the euro area in the maturities relevant for savings and investment decisions, it appears that, particularly in countries with a long track record of maintaining price stability, long-term real interest rates are indeed the rates most

relevant for savings and investment decisions. Consequently, in the remainder of this article, the focus is placed on long-term real interest rates.

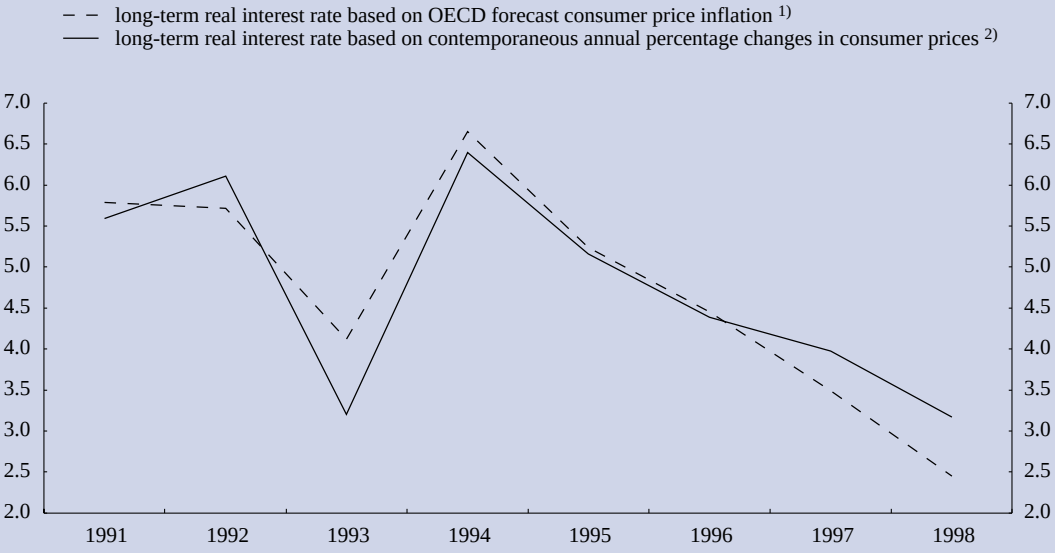
Since inflation expectations cannot be measured directly, it is necessary to choose a method for computing them. When conducting historical analyses of the evolution of real interest rates over a long period of time, an ex post approach can often be adopted. A measure of inflation expectations is thereby constructed using the outturn for inflation over the relevant period. This approach to measurement yields a correct measure of the real rate only if actual realisations of inflation turn out to be close to previous expectations. As over longer time periods errors may tend to cancel one another out, longer-term ex post real interest rates may often offer a sensible measure.

Such an approach is not feasible when examining current real interest rates. For example, in the chart shown below, the most recent ten-year ex post real interest rate would require data for the inflation rate ten years ahead, which is not known at present. In these circumstances, an ex ante approach needs to be used, in which inflation expectations are estimated. Several methods are possible for assessing inflation expectations. For example, an explicitly forward-looking approach may be based on simple statistical models which extrapolate the inflation series into the future or on large-scale econometric models which incorporate information regarding the whole economy when producing inflation projections. Alternatively, an attempt to measure inflation expectations directly can be made using survey data. However, most surveys provide only qualitative responses, which then have to be converted into quantitative form. It should also be recognised that the horizon for inflation expectations reported in most forecasts and surveys is too short for the construction of long-term interest real rates and that the production of surveys and forecasts is too infrequent for some purposes. In the chart shown below, a forecast-based approach is adopted using inflation projections produced by the OECD covering a period two years ahead.

As an alternative, the current inflation rate could be taken as a measure of inflation expectations. As is shown in the chart below, in the 1990s this simple measure follows broadly the same path as a more sophisticated estimate of the long-term real interest rate based on inflation forecasts from the OECD's macroeconomic model. For the purposes of simplicity, the remainder of this article focuses on this measure of the long-term real interest rate, namely the ten-year nominal government bond yield, adjusted using the current headline rate of consumer price inflation.

Long-term real interest rates in the euro area

(percentage points; annual data)

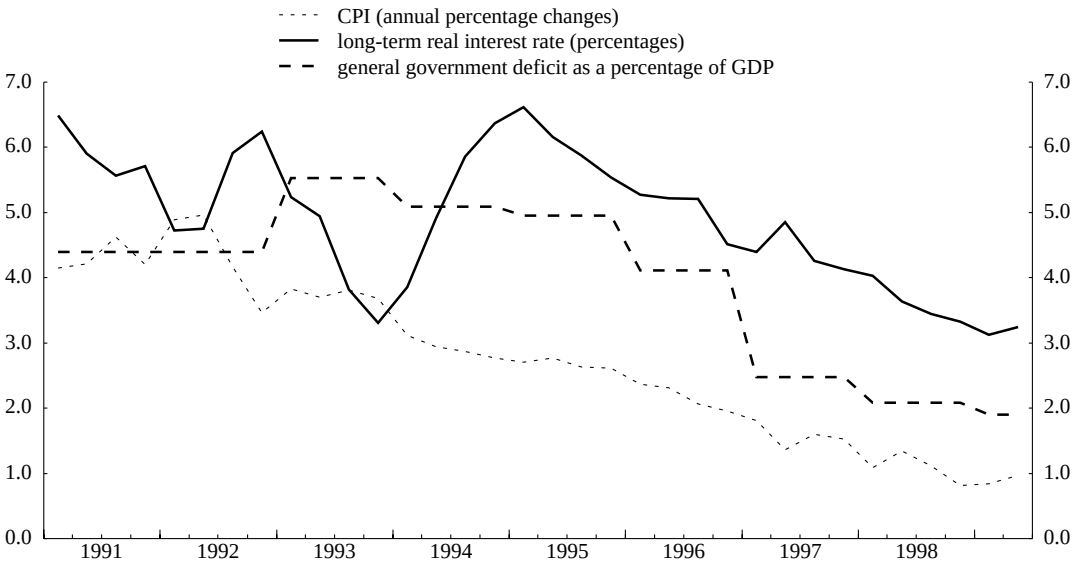


Sources: OECD, ECB calculations.
Note: The euro area long-term real interest rate is calculated as the weighted average of national long-term real interest rates with fixed GDP weights at 1995 purchasing power parity (PPP) exchange rates.
1) Computed as the end-of-year nominal ten-year government bond yield minus the then prevailing average forecast inflation for the following two years.
2) Computed as the end-of-year nominal ten-year government bond yield minus contemporaneous consumer price changes.

Chart 1

Long-term real interest rates, CPI and general government deficit

(quarterly data)



Sources: Eurostat, Reuters and ECB calculations.
Note: The euro area long-term real interest rate is calculated as the weighted average of national long-term real interest rates with fixed GDP weights at 1995 purchasing power parity (PPP) exchange rates; national long-term real interest rates are calculated as nominal government bond yields (ten-year bonds or the closest available bond maturity) minus contemporaneous annual changes in national consumer prices.

Chart 1 indicates that falling real interest rates since the mid-1990s have been accompanied by a parallel fall in fiscal deficits in the euro area as well as by a continuous decline in inflation rates.

The magnitude of the decline in long-term real interest rates has varied across the different countries which now form the euro area. Chart 2 shows the evolution of the spread between the real interest rate in each euro area country and Germany, which is the country where the decline between the first half of the 1990s and the end of 1998 was smallest (see Table 1). The chart demonstrates that the decline in the average level of the euro area real interest rate was associated with a convergence of real rates towards the level which prevailed in Germany, the euro area country which recorded the lowest average inflation rates in the three decades leading up to the 1990s.

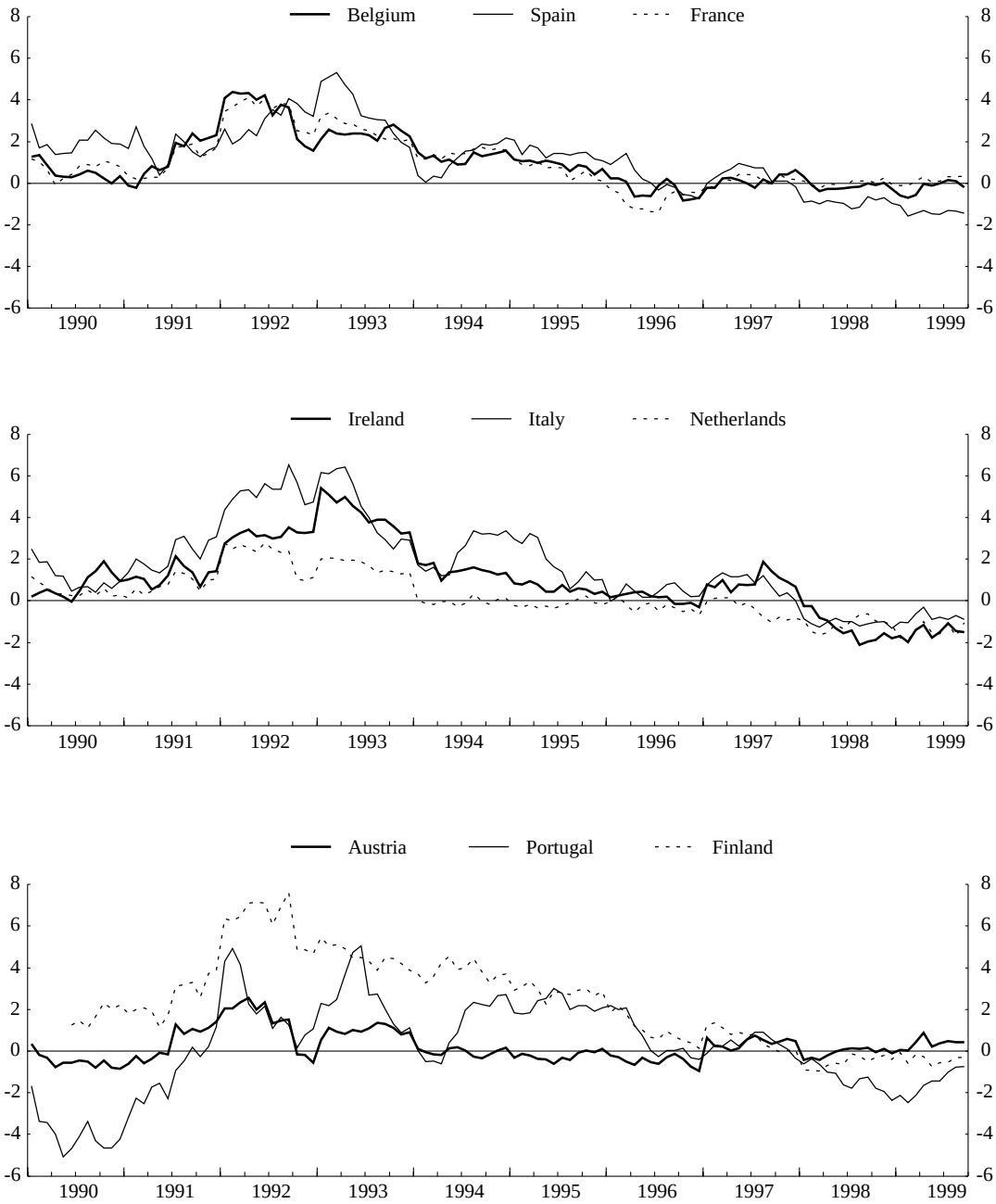
It is also of interest to examine the behaviour of the euro area real interest rate in a global context. As can be seen from Chart 3, in the United States long-term real yields have been far more stable during the 1990s than in the euro area, mainly fluctuating between rates of 3% and 4% per annum. Relatively constant long-term real yields in the United States during the 1990s may reflect a balance between, on the one hand, the downward pressures resulting from considerable progress made towards fiscal consolidation in the second half of the 1990s and, on the other, the upward pressures emanating from the strong growth performance of – and favourable prospects for – the US economy. At the same time, in Japan long-term real interest rates fell dramatically between 1995 and 1997 in the wake of the deteriorating economic situation and have risen again only slightly since 1997, reflecting in particular the sharp deterioration in the fiscal position seen in recent years.

Chart 3 also illustrates that, even in an integrated global environment, long-term real interest rates can differ across major countries. Such differences are mainly the result of exchange rate expectations,

Chart 2

Long-term real interest rate differentials with Germany

(percentage points; monthly data)



Sources: Eurostat, BIS.

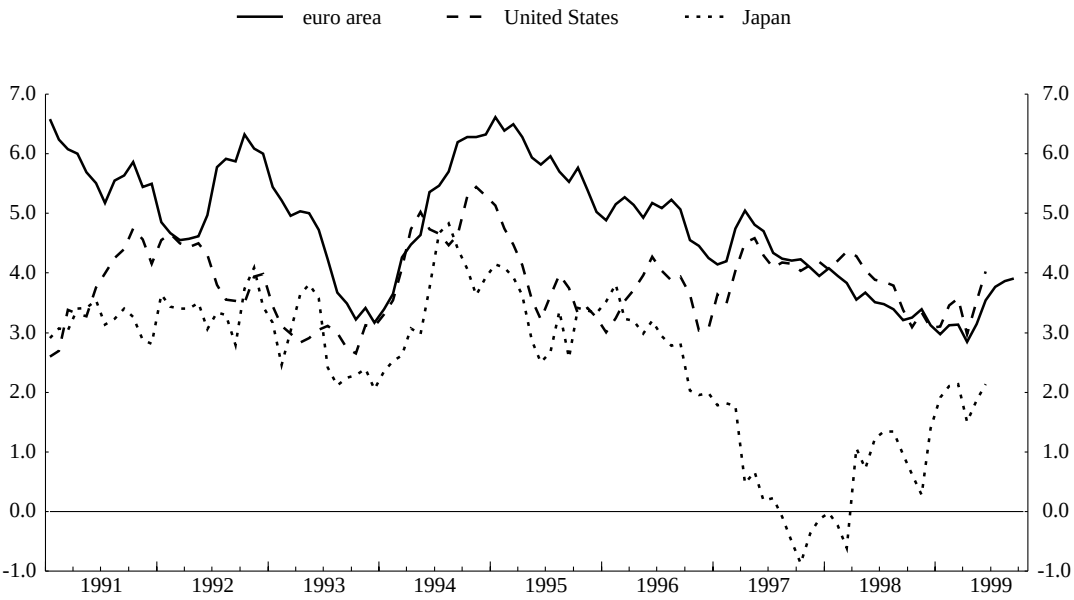
Note: National long-term real interest rates are calculated as nominal government bond yields (ten-year bonds or the closest available bond maturity) minus contemporaneous annual changes in national consumer prices.

differences in expected longer-term price trends and currency risk premia. In this respect, different monetary and fiscal policies in recent years have often affected the size of the deviation between euro area and foreign real interest rates by influencing the magnitude of expected (real) exchange rate depreciations and currency risk premia.

Chart 3

Developments in the long-term real interest rates in the euro area, United States and Japan

(percentages per annum)



Sources: National data and ECB calculations.

Note: The euro area long-term real interest rate is calculated as the weighted average of national long-term real interest rates with fixed GDP weights at 1995 purchasing power parity (PPP) exchange rates; national long-term real interest rates are calculated as nominal government bond yields (ten-year bonds or the closest available bond maturity) minus current annual changes in national consumer prices.

3 The contribution of stability-oriented policies

There are many reasons to assume that over recent years the pursuit of stability-oriented monetary and fiscal policies has played a substantial role in developments in the long-term real interest rate in the countries which now form the euro area. As noted above, the stricter orientation of monetary policy towards price stability led to a continuous decline in the level of inflation in the euro area. The progressively lower level of inflation in the euro area contributed to significantly lower inflation volatility. This, in turn, should have considerably reduced uncertainty about future price developments and the associated inflation risk premia in long-term real interest rates.

This argument is supported by the experience of individual countries now forming the euro area. Long-term real interest rates have fallen most substantially in those countries which entered the 1990s with relatively high inflation rates (see Table 1). With the sustained reduction of inflation in the period preceding the transition to Stage Three of EMU in January 1999, it was in these countries that the benefit of moving towards an environment of price stability was greatest and, therefore, where the reduction in inflation risk premia was most substantial. In this way, these countries have lowered the effective cost of investment, which over the medium term should improve growth and employment prospects.

Table 1 also indicates that, in the early 1990s, the volatility of effective exchange rates differed considerably across the countries which now form the euro area. There is reason to assume that real interest rates in many of these countries incorporated significant exchange risk premia in the early 1990s. These premia compensated asset holders for the uncertainty introduced by exchange rate fluctuations into

Table 1

Selected macroeconomic indicators in euro area countries

	General government gross debt (as a percentage of GDP)		General government fiscal balance (as a percentage of GDP)		Consumer price inflation (annual percentage change)		Effective nominal exchange rate volatility		Long-term real interest rate (percentage per annum)	
	1991-95	1998	1991-95	1998	1991-95	1998	1991-95	1998	1991-95	1998
Euro area	66.7	73.4	-4.9	-2.1	3.6	1.3	.	.	5.4	3.4
Belgium	132.6	117.3	-5.9	-1.3	2.4	1.0	0.6	0.3	5.6	3.8
Germany	48.4	61.1	-2.9	-2.0	3.5	0.9	0.8	0.5	3.8	3.6
Spain	55.2	65.6	-5.7	-1.8	5.2	1.8	1.0	0.4	5.9	3.0
France	44.5	58.5	-4.4	-2.9	2.2	0.8	0.7	0.4	5.6	3.9
Ireland	89.0	52.1	-2.1	2.3	2.5	2.4	0.8	1.1	5.9	2.4
Italy	115.9	118.7	-9.2	-2.7	5.1	2.0	1.4	0.4	7.0	2.9
Luxembourg	5.2	6.7	1.8	2.1	2.8	1.0	.	.	4.7	3.8
Netherlands	79.5	67.7	-3.6	-0.9	2.7	2.0	0.6	0.4	4.7	2.6
Austria	62.6	63.3	-3.9	-2.1	3.2	0.9	0.5	0.3	4.3	3.8
Portugal	61.9	57.0	-5.4	-2.3	7.1	2.8	0.7	0.2	5.2	2.1
Finland	47.1	49.1	-5.0	1.0	2.3	1.4	1.3	0.5	7.8	3.4

Sources: National data, BIS calculations and ECB calculations.
Note: Consumer price inflation is the annual percentage change in national CPI; the consumer price inflation in the euro area is a weighted average of national CPI inflation; weighted at 1995 purchasing power parity (PPP) exchange rates; the national effective nominal exchange rates are based on 1990 merchandise trade between 25 countries; volatility is measured as the average month-on-month percentage change in the effective nominal exchange rates. The long-term real interest rates are calculated as nominal government bond yields (ten-year bonds or the closest available maturity) minus contemporaneous annual changes in consumer prices; the euro area long-term real interest rate is the weighted average of national long-term real interest rates; weights fixed GDP weights at 1995 purchasing power parity (PPP) exchange rates.

the real return. Intra-euro area exchange rate stability in the run-up to Stage Three of EMU, which was supported by both more stability-oriented policies and convergence of inflation rates, should have reduced these risk premia. Again, this argument can be supported by evidence taken from a comparison of the individual countries which now form the euro area. Long-term real interest rates have fallen considerably in countries which, in the first half of the 1990s, exhibited the highest nominal effective exchange rate volatility (see Table 1).

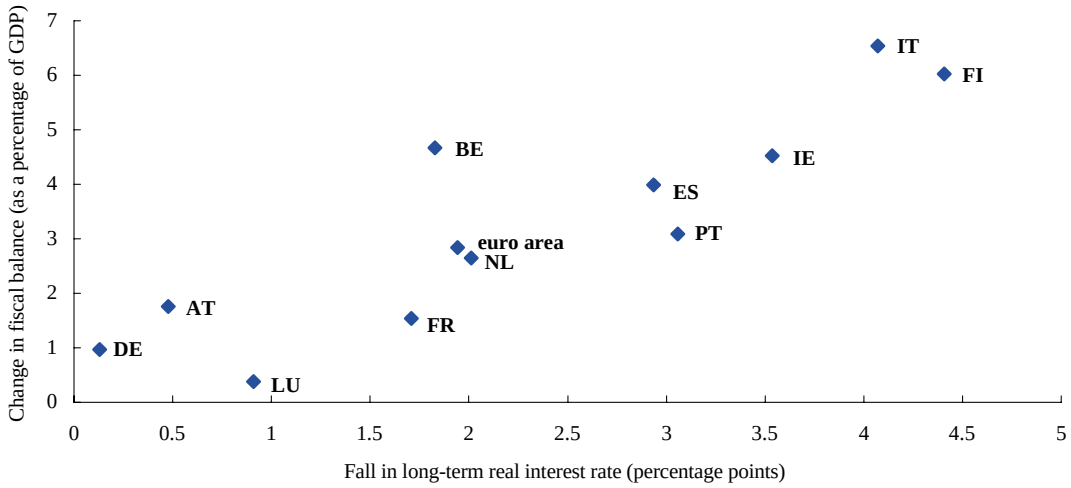
Progress towards fiscal consolidation has also contributed to the reduction of long-term real government bond yields during the 1990s (see Box 2). As can be seen in Table 1, in the early 1990s there is a clear correlation between fiscal indiscipline – manifested, in part, in high ratios of the fiscal deficit and public debt to GDP – and extremely high levels of real interest rates in the countries which now form the euro area. The fiscal criteria for the transition to Monetary Union implied by the Treaty establishing the European Community were then helpful in imposing greater discipline on fiscal policy in the euro area.

As illustrated in Table 1, countries which had high fiscal deficits in the early 1990s and made the most progress in reducing them by the time the euro was introduced at the start of 1999 typically saw the largest declines in long-term real interest rates (see also Chart 4). This effect can be seen most obviously in Italy and Finland, where the changes in the fiscal balance over the 1990s were most pronounced. Ireland is also a striking example of the success of fiscal consolidation. Indeed, as shown in Table 1, it appears that Irish long-term real interest rates have fallen dramatically mainly as a result of the substantial progress made with fiscal consolidation.

Although further progress needs to be made in several countries in order to meet the objective of government budgets close to balance or in surplus over the medium term, the convergence process has initiated significant fiscal consolidation. The Stability and Growth Pact – if properly enforced – will

Chart 4

Differences between the 1991-95 average and the 1998 value of the long-term real interest rate and the fiscal balance



Sources: National data and ECB calculations.
Note: The long-term real interest rates are calculated as nominal government bond yields (ten-year bonds or the closest available maturity) minus contemporaneous annual changes in consumer prices; the euro area long-term real interest rate is the weighted average of national long-term real interest rates; weighted with fixed GDP weights at 1995 purchasing power parity (PPP) exchange rates.

help to sustain this process (as discussed in the article entitled "The implementation of the Stability and Growth Pact" in the May 1999 issue of the ECB Monthly Bulletin).

As the preceding discussion has illustrated, even when focusing narrowly on the relationship between the design of monetary and fiscal policies and the evolution of long-term real interest rates, one can see many interrelated factors at work. It is not possible to disentangle precisely the various channels through which the pursuit of stability-oriented policies can change the real interest rate from the levels which would have otherwise prevailed if well-designed stability-oriented policies had not been followed. Indeed, the data presented above suggest that the importance of various factors may have varied from one euro area country to another. However, taken as a whole, these data support the hypothesis that the stricter orientation of monetary policy towards the maintenance of price stability and of fiscal policy towards improving the sustainability of public finances has reduced distortions in the real interest rate, thereby freeing capital for private investment and allowing the capital market to work more efficiently.

Obviously, as the euro area is well integrated into international financial markets, its real interest rate also depends on global factors, including expected world economic growth, the outlook for global price developments and the aggregate world-wide fiscal stance. However, given the size and economic importance of the euro area to the global economy, developments in the euro area can themselves have a significant impact on global trends. In these circumstances, the evolution of long-term real interest rates in the euro area cannot be characterised simply as a passive reaction to global developments – the causality runs in both directions. Seen in this light, the pursuit of stability-oriented policies in the euro area during the 1990s has made a significant contribution to improved growth prospects world-wide.

Box 2

Fiscal consolidation and real interest rates

There are two main channels whereby fiscal indiscipline is likely to increase real interest rates.

First, when running a fiscal deficit, a government draws real resources away from the private sector. To the extent that these resources are not freed by lower consumption (if households decide to save more in order to prepare for payment of the higher future taxes required to finance the servicing of the public debt being accumulated), a higher fiscal deficit will increase the real interest rate and "crowd out" private investment.

Second, fiscal indiscipline introduces specific risk premia into long-term real interest rates on government bonds. These take two forms. First, a credit or default risk premium may be introduced in the real yield on bonds issued by the respective national government. These risk premia may in turn affect the risk premia paid by private borrowers of the same country if markets believe that the government may ultimately be forced to resort to higher taxes to finance its debt. Fiscal reforms which restore and enhance the sustainability of the public finances will help to reduce these risk premia. Second, by introducing an additional source of uncertainty about the path of real interest rates over time, fiscal indiscipline can be associated with higher risk premia.

Fiscal consolidation is likely to be an important explanation of the trend decline in long-term real interest rates in the euro area in the second half of the 1990s. Therefore, the fall of real interest rates in recent years was a symptom of an underlying beneficial economic change, namely progress towards more sustainable public finances and the release of economic resources to be allocated to more productive uses by the private sector.

4 Concluding remarks

Disinflation, nominal exchange rate stability and, in particular, fiscal consolidation associated with the convergence process leading to Stage Three of EMU have made a significant contribution to reducing distortions in the long-term real interest rate and releasing resources for private investment. The convergence process required the countries which form the euro area to introduce and pursue well-designed monetary and fiscal policies. As a result of the pursuit of these stability-oriented policies during the 1990s, the euro area now enjoys an environment of stable prices and more sustainable public finances. Even though further fiscal consolidation is certainly needed, the convergence achieved so far has conferred on the euro area a favourable outlook for sustainable real economic growth, improved employment prospects and price stability.

It is the task of the Eurosystem to ensure that price stability is maintained in the euro area in the future. A credible stability-oriented monetary policy focusing on the maintenance of price stability over the medium term reduces uncertainty with regard to future developments in the price level, thereby reducing the risk premia which can distort longer-term real interest rates. As this allows the capital market to operate more efficiently in allocating resources to their most productive uses, a monetary policy which maintains price stability makes an important contribution to growth and employment prospects over the medium term. This argument, together with the other channels through which price stability benefits economic welfare, underlies the design of the Eurosystem's monetary policy strategy and its overriding concern with the maintenance of price stability in the euro area (see the article entitled "The stability-oriented monetary policy strategy of the Eurosystem" in the January 1999 issue of the ECB Monthly Bulletin).

These benefits of price stability could be forfeited if monetary policy were to deviate from its medium-term stability orientation and were, for example, to try to "fine tune"

economic developments in the short term. This policy would only lead to a high level of uncertainty about future price developments and may require larger and more abrupt interest rate changes than would be necessary if a stability-oriented policy had been pursued. As the evidence presented in this article suggests, a monetary policy of this type would merely raise risk premia and thereby worsen the outlook for economic growth. For this reason, a monetary policy which deviates from a stability orientation would be prejudicial to longer-term growth and employment prospects.

While stability-oriented policies have helped to improve the economic fundamentals of the euro area over recent years, there is still much to be done in other policy areas in order to enhance the growth potential of the euro area economy and reduce the high level of structural unemployment. The key to higher sustainable, non-inflationary growth and an improved outlook for employment in the euro area lies in the implementation of appropriate structural economic reforms which improve the flexibility and efficiency of labour and product markets. Such reforms would redress the structural economic problems which are the most burning issues facing Europe at the present juncture.