[SLIDE 1]

# The single monetary policy and the analytics of OCAs: what has the euro area experience taught us?

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1. It gives me great pleasure to be here today to give this public lecture on the European experience with monetary union. The fact that the lecture is taking place at my *Alma Mater* makes this occasion a particularly special one for me, and I am grateful to Howard Davis and Kevin Featherstone for extending me the invitation. I hope that what I have to say will provide some food for thought. Indeed, I am hopeful that I may be able to convince some sceptics in the audience – and I know that they are out there – that monetary union among European countries can and does work!

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2. [SLIDE 2] The adoption of the euro by 11 EU countries in 1999 was a remarkable achievement. It represented the culmination of a process of integration and convergence that had begun some 50 years earlier. The creation of the euro could be viewed as the end of a process, with Europe having finally reached full economic and monetary integration. Such a view, however, would, at best, be incomplete. Although the introduction of the euro marked the culmination of a long process, it also marked the beginning of another one. In particular, it created new challenges for economic policy. I will focus on these challenges in what follows.

3. [SLIDE 3] A natural starting point for analysis of the benefits and costs of a monetary union is the theory of optimum currency areas, originated by Robert Mundell in the early 1960s, and an important reason for his Nobel Prize in Economics. This literature on optimum currency areas identifies two main costs of a country's participation in a monetary union. These costs are the loss of an independent monetary policy and the ability to alter the nominal exchange rate in order to mitigate the effects of asymmetric shocks. The theory also identifies the desirable characteristics that potential members of a single currency area should have in order to minimise these costs. The characteristics are sometimes viewed as preconditions for judging whether a nation should join a currency union.

4. I will argue that this traditional way of thinking about judging optimality is incomplete. Underlying my argument are the following two factors.

   - First, the traditional approach has to be modified to take modern developments in monetary theory and policy into account. In a world in which monetary policy is best suited to achieve price stability, the loss of monetary policy independence may not be very costly. In fact, for a small open economy, such as Greece, it may actually provide net benefits.
   - Second, it can be misleading to view the optimum-currency-area characteristics as preconditions for ensuring the success of a country's participation in a monetary union. In particular, to view the characteristics as preconditions overlooks the fact that the characteristics, or criteria, can themselves be endogenous. I will argue that the creation of a monetary union can itself create conditions that are favourable to the well-functioning of the union.

[SLIDE 4] **I. The Loss of Monetary Policy Independence to the ECB**

5. Let me first turn to the matter of the loss of monetary independence. Modern monetary theory emphasises the role of monetary policy in providing price stability. By so doing, monetary policy can best provide a stable environment, which is a prerequisite for growth. This view contrasts strongly with the view that monetary policy can be used for fine-tuning the economy.

6. The intellectual underpinnings of the emphasis on price stability can be traced to Milton Friedman's and Ed Phelps' critique of the Phillips curve in the late 1960s. …. On a brief personal note, I was privileged to have been taught macroeconomics at LSE by A W Phillips. Professor Phillips was an excellent teacher who made contributions in many areas of macroeconomics. In fact, it is well known that Milton Friedman tried to recruit him to the University of Chicago, but, fortunately for LSE, he declined. …. The Phillips curve expressed the idea of a trade-off between inflation and unemployment. The Friedman-Phelps insight, which helped earn those economists their respective Nobel prizes, was that the trade-off was, at best, temporary. Repeated attempts to reduce unemployment by allowing inflation to rise would result in ever-increasing inflation with unemployment returning to its natural rate. Although the Friedman-Phelps hypothesis swept through academia in the 1970s, policy makers were slower to catch on. As a result, the 1970s, and in some cases the 1980s, provided a real-world laboratory for testing the Friedman-Phelps hypothesis. As we now know, central banks that kept trying to pin down the rate of unemployment wound up with both high inflation rates and high unemployment rates. This was a lesson that would not be lost on subsequent generations of central bankers.

7. Building on the Friedman-Phelps insight, Finn Kydland and Ed Prescott showed that a central bank engaged in discretionary policies has an incentive to promise low inflation, but then to run an expansionary monetary policy that produces higher inflation without lowering unemployment. In a contribution that helped earn these authors the Nobel Prize in 2004, Kydland and Prescott showed that, to be credible, central bankers must demonstrate that they are fully committed to a low-inflation objective. Full commitment in the Kydland-Prescott framework, necessitates independence from political pressures to follow inflationary monetary policies. Otherwise, once inflation expectations become entrenched, it can be very difficult to reduce them. The costs of doing so, in terms of higher unemployment, can be substantial. Again, the experiences of country after country which pursued expansionary monetary policies in the 1970s and 1980s provided the laboratory.

8. [SLIDE 5] These insights, and the subsequent literature built around them, contributed to the now widely-held view that central banks should have independence from the political process with a mandate to achieve price stability. In this way the monetary authorities can make the best possible contribution to supporting sustained economic growth and employment creation.

9. [SLIDE 6] The monetary policy strategy of the ECB can be seen in this light. It involves three key elements. First, there is the objective of price stability which the ECB defines as a year-on-year increase in consumer prices for the euro area of "below, but close to, 2 per cent". The "close to" was added in 2003 to establish a safety margin above zero inflation to guard against deflationary risks. Price stability is a medium-term goal reflecting the long lags involved in the transmission of monetary policy.

10. Second, the "two pillars" of economic and monetary analyses have been formulated so as to enable the ECB to attain its objective.

- In the economic analysis, an assessment of current economic and financial developments from the perspective of the interplay between supply and demand in the product and factor markets is made. This provides short- to medium-term indications of inflation.
- As a cross-check to the economic analysis, the monetary analysis focuses on money and credit developments in recognition of empirical evidence suggesting that monetary growth and inflation tend to be related in the medium to long run.

11. [SLIDE 7] The final element is central bank independence. The Maastricht Treaty grants full political independence to the ECB in its pursuit of price stability. In a democratic society, however, central bank independence needs to be counterbalanced by accountability, that is, an obligation on the part of the central bank to explain its decisions to the public and its elected representatives, including, in the case of the ECB, those in the European Parliament. In turn, accountability requires transparency with respect both to objectives and decision-making. To this end, monetary policy decisions taken by the ECB are explained "in real time" at a press conference immediately after each rate-setting Governing Council meeting.

12. The success of the ECB's monetary strategy is borne out by its record. Since the inception of the euro area, average inflation in the euro area has been 2.08%, a shade higher than the ECB's definition of price stability [[SLIDE 8] Figure 1: inflation and interest rates]. Inflation expectations have also remained firmly anchored around the ECB's definition of price stability, attesting to the ECB's credibility [[SLIDES 9/10] Figure 2:

inflation expectations]. Long-term interest rates have been at historically low levels.

13. For countries such as Greece, with histories of high inflation, the gains from joining the euro area have been very substantial. For years, Greece suffered from double-digit inflation [[SLIDE 11] Figure 3: Greek inflation and growth]. Growth was anaemic and unemployment rose in spite of periods of fairly loose monetary policy. Nominal interest rates were high, reaching close to 30 per cent at times during the 1980s. In contrast, the low levels of nominal interest rates experienced in the euro area, reflecting the low levels of inflation expectations, have created conditions for an improved business climate, higher investment and, ultimately, higher growth.

14. [SLIDE 12] In sum, the loss of monetary policy independence, identified in the earlier optimum-currency-area literature as one of the two main costs of joining a monetary union, is not necessarily a cost after all. That earlier literature was formulated in the context of Keynesian demand-management policies that were popular in the 1960s. Since that time, however, both economic theory and the experience of high unemployment coupled with high inflation have taught us the importance of a credible monetary policy aimed at providing price stability.

15. Moreover, I have argued that for countries with histories of high inflation and political interference in policy formation, a credible monetary policy can be attained by joining a monetary union with an independent central bank. [SLIDE 13] I also mentioned, however, that the earlier literature on optimum currency areas identified a second cost of joining a monetary union – the loss of the exchange-rate instrument. After all, monetary policy can be focused on price stability, but, in the face of an asymmetric shock, the nominal exchange rate may change so that

adjustment is facilitated. How important, then, is the exchange-rate instrument in dealing with asymmetries among the countries participating in the euro area?

## II. Asymmetric shocks and the loss of the exchange rate as a policy instrument: the preconditions for monetary union reassessed

16. The early literature on optimum currency areas included a search for mechanisms that could replace the exchange rate or compensate for its absence. This search led to the identification of a number of criteria on which the optimality of a potential currency area could be assessed. These criteria effectively became preconditions for forming a single currency area.

17. [SLIDE 14] I will argue that this traditional view is static in nature. It assumes that a country's characteristics are immutable. In fact, the experience of the euro area suggests that participation in a monetary union can, in itself, induce changes in economic structure and performance that make the currency area optimum. Much academic research, based on the experience of European monetary union, indicates that the creation of a monetary union can itself create conditions favourable to the well-functioning of the union, either through endogenous changes in the way the economies of the union operate or through policy changes induced by the existence of the union. Let me illustrate by discussing some of the so-called preconditions enumerated in the early literature and looking at their evolution within the euro area.

18. [SLIDE 15] Mundell, in 1961, identified high mobility of the factors of production (both capital and labour) as a precondition for giving up the use of the national exchange-rate. While labour mobility is still low within the euro area, reflecting, in part, linguistic and cultural differences, the mobility of capital has been increasing as evidenced by the positive effect that the euro has had on intra-euro area FDI. Between 1999 and 2006 (the latest data available), the stock of euro area FDI more than doubled, from around 14 per cent of euro area GDP to over 30 percent.

19. [SLIDE 16] The importance of the mobility of financial capital was highlighted not only by Mundell (1961), but also by James Ingram who, in 1962, emphasised the role that financial market integration could play in reducing the costs of monetary union. Deeper financial market integration can help in a number of ways. First, it can cause the transmission mechanism of monetary impulses to become more similar throughout the countries of the union. Second, it can help reduce the impact of asymmetric shocks by causing equilibrating movements in capital flows. Finally, it can allow members of the union to insure against the impact of asymmetric shocks since it provides opportunities for diversification of income sources. If members of the monetary union hold claims on other countries within the union, then the income effect of any asymmetric shocks would be mitigated.

20. [SLIDE 17] The introduction of the euro has helped make euro area financial markets more integrated. The money market has been almost perfectly integrated since the formation of monetary union. [[SLIDE 18] Figure 4: corporate bond issues] The significant growth of the euro corporate bond market also provides evidence of integration and widens the range of potential investors to which firms have access. [[SLIDE 19] Figure 5: government bond market spreads] National bonds and equity

market returns exhibit closer co-movements than they did prior to the introduction of the euro. [[SLIDE 20] Figure 6: rolling correlations of equity market returns] The main area where financial integration has lagged is that of retail banking where, in spite of an increase in cross-border mergers and acquisitions in recent years, cross-border activity remains relatively limited.

21. [SLIDE 21] Forces for further integration will continue, as market participants increasingly exploit the new environment of monetary union. In addition, a number of initiatives, supported by the Eurosystem and/or the Commission, are further encouraging integration. An example is TARGET2, the new payment platform for the financial system, which began operating in November 2007. As integration proceeds, we can expect that monetary transmission mechanisms across the euro area will continue to converge, helping the implementation of the single monetary policy and bringing the euro area closer to an optimum currency area.

22. [SLIDE 22] Ronald McKinnon, in 1963, added the criterion of openness. The more open the economies of a monetary union, the less effective nominal exchange rate changes will be in facilitating adjustment because the changes are more likely to feed onto domestic prices and wages, offsetting the competitiveness gains.

23. [SLIDE 23] Recent empirical evidence, however, has shown that a common currency (as opposed to separate currencies tied together with fixed exchange rates) can promote openness, or trade integration.[1] The basic intuition underlying this view is that a set of national currencies is a significant barrier to trade. In addition to removing the costs of currency conversion, a single currency and a common monetary policy preclude future competitive devaluations, and facilitate foreign direct investment

[1] See Rose and Stanley (2005) for a survey of the literature on the trade-creation effects of a common currency.

and the building of long-term relationships. These outcomes, in turn, can promote (over-and-above what may have been attained on the basis of the elimination of exchange-rate uncertainty among separate currencies) reciprocal trade, economic and financial integration, and the accumulation of knowledge. Greater trade integration can increase growth by increasing allocative efficiency and accelerating the transfer of knowledge.

24. The euro area's experience indicates that the euro has indeed acted as a catalyst for trade integration. Intra-euro area trade in goods increased from 26% of euro area GDP in 1998 to 33% in 2006. Intra-area trade in services has also risen. Recent empirical work has shown that similar increases in trade have not taken place among European countries which did not adopt the euro[2].

25. [SLIDE 24] Kenen (1969) emphasised product diversification, the idea being that countries which were more diversified or less specialised in production would be less likely to face asymmetric shocks. Indeed, before the formation of European monetary union, there was considerable worry that monetary union would cause national economies to become more specialised[3] as production became concentrated to reap the benefits of scale and agglomeration economies. Whilst there is perhaps little evidence that the advent of monetary union has caused economies to become even more diversified, there is no evidence that they have become more specialised, thus allaying these early fears.

26. [SLIDE 25] Another contribution to optimum-currency area literature, again made by Peter Kenen in 1969, brought out the importance of establishing a fiscal transfer mechanism at the supranational level in order to help stabilise economies hit by asymmetric shocks. While such a

[2] See Baldwin (2006).
[3] See Krugman and Venables (1996).

centralised fiscal mechanism is extremely limited in Europe, the Stability and Growth Pact with its emphasis on budgets being either in balance or surplus over the economic cycle is designed to ensure that national budget have the flexibility to react to adverse asymmetric shocks.

27. [SLIDE 26] In sum, the creation of the euro may itself be contributing to the very conditions that make the use of nominal exchange-rate adjustments among the members of the euro area less necessary than was the case before they joined the euro area. Nevertheless, it can be argued that a country surely must give up *something* if it no longer has the exchange-rate tool. My reaction to this argument is that adjustment of the nominal exchange-rate is not a magic bullet. One should not expect an economy with competitiveness problems, running, say, current account deficits equal to 6 per cent of GDP, to depreciate the nominal exchange rate and become competitive for-ever-after. We tried this policy in Greece in the 1980s; and wound up with higher inflation, undiminished current-account deficits, and a currency that became prone to speculative attacks.

28. By its very nature, the current account is the result of intertemporal decisions with respect to savings and investment by the private sector and government. It should not be surprising, then, that the nominal exchange rate cannot be relied upon to bring about *lasting* adjustment. Such adjustment requires changes in an economy's structure, and, as I have argued, membership in a monetary union can encourage those changes.

## III. Conclusions

29. [SLIDE 27] I have argued that ways of thinking about monetary union have evolved considerably from the early days of the literature on optimum currency areas. Developments in modern macroeconomics recast the goals of monetary policy. The focus nowadays on price stability and

the creation of the conditions necessary to support growth and employment changes the balance of the arguments about the cost of giving up an independent monetary policy. Provided that the monetary policy framework at the union level delivers price stability, there is little to be lost from transferring monetary policy to the union level.

30. The success of the euro area has demonstrated that one size can fit all. Let me briefly mention three pieces of evidence which support this. [[SLIDE 28] Figure 7: inflation dispersion in the euro area cf US] First, inflation dispersion has declined and has been around 1 percentage point since the second half of 1999. This compares favourable with inflation dispersion across a monetary union of similar size, the US. [[SLIDE 29] Figure 8: growth dispersion in the euro area cf US] Second, the decline in inflation dispersion has not been at the expense of higher growth dispersion. Growth dispersion has remained close to its historical average of around 2 percentage points and, if any trend is discernable, it is a downward one. [[SLIDE 30] Figure 9: rolling business cycle correlations] Finally, business cycles appear to have become more correlated.

31. [[SLIDE 31] The evidence from almost 10 years of monetary union in Europe points to a euro area which is endogenously adapting itself to become an optimum currency area. The euro area provides clear evidence that the criteria identified in the earlier literature do not need to be exogenously in place prior to monetary union. I do not want to leave you with the impression, however, that euro-area policy-makers can sit back and relax because all the necessary work has been done. After all, I began this lecture by remarking that the adoption of the euro created new challenges for economic policy. The adoption of the euro was neither the beginning nor the end of an optimum currency area among European countries. The process is ongoing, and much more needs to be done,

especially in regard to structural policies, to ensure that the euro area becomes a more dynamic force for growth in the global economy. It is my view that the experience of the euro area to date only serves to highlight the fact that a currency union requires flexibility and competition in factor and product markets. These are the characteristics that will make monetary union work more effectively.

Thank you for your attention.

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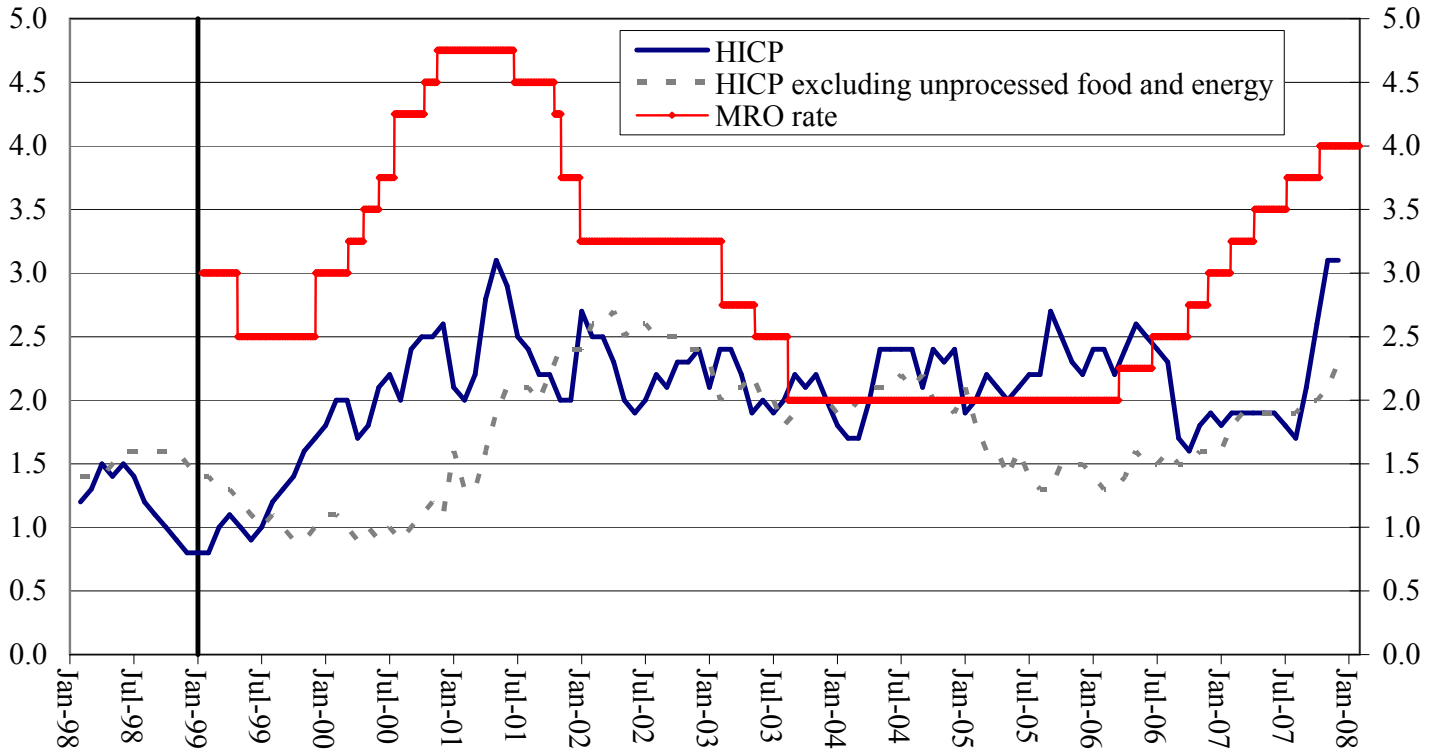
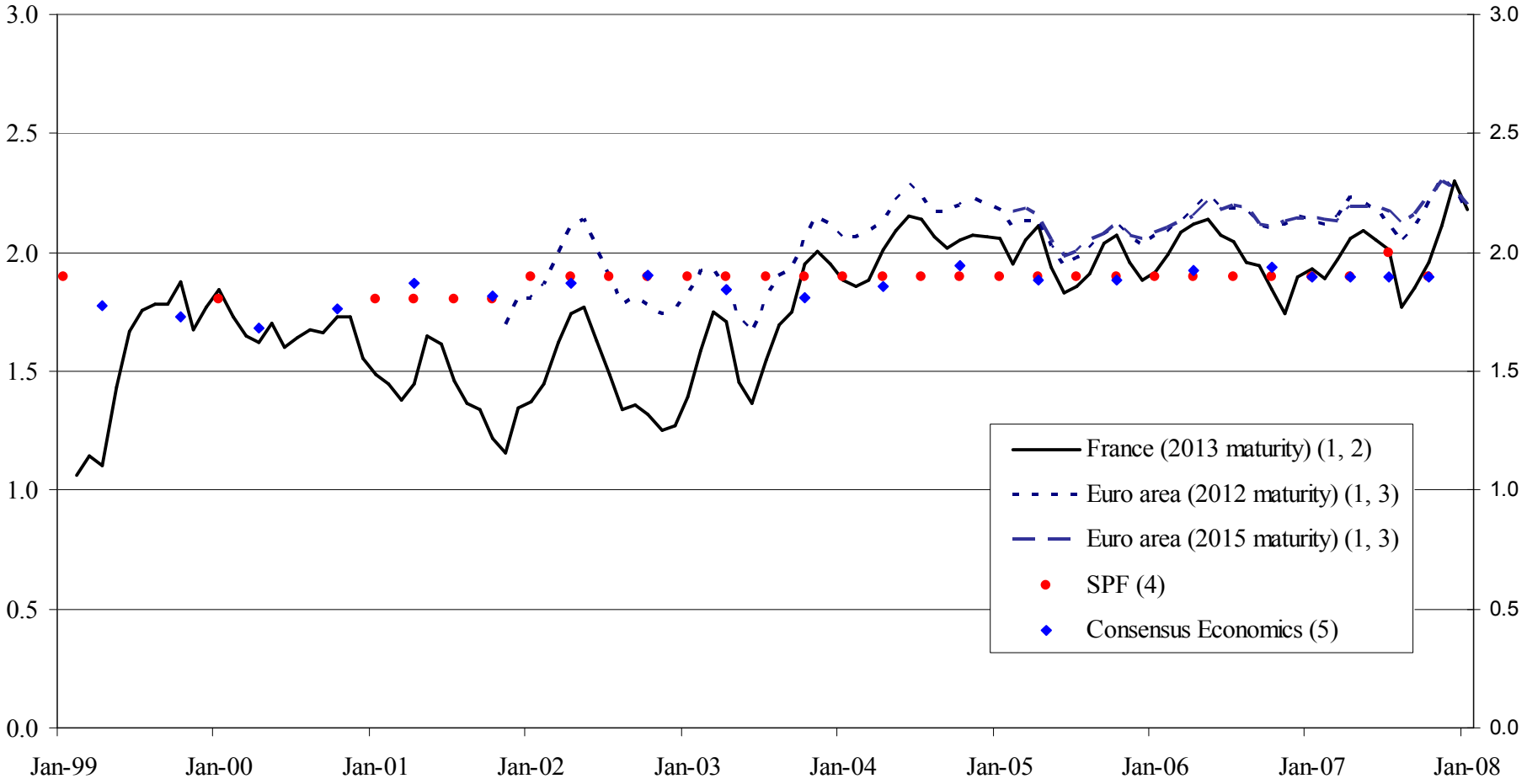
**Figure 1: Annual inflation (HICP) and Main Refinancing Operations (MRO) rate (January 1998 - January 2008)** (in percent)




Source: ECB

**Figure 2: Indicators of long-term inflation expectations in the euro area (January 1999 - January 2008)** (monthly averages)

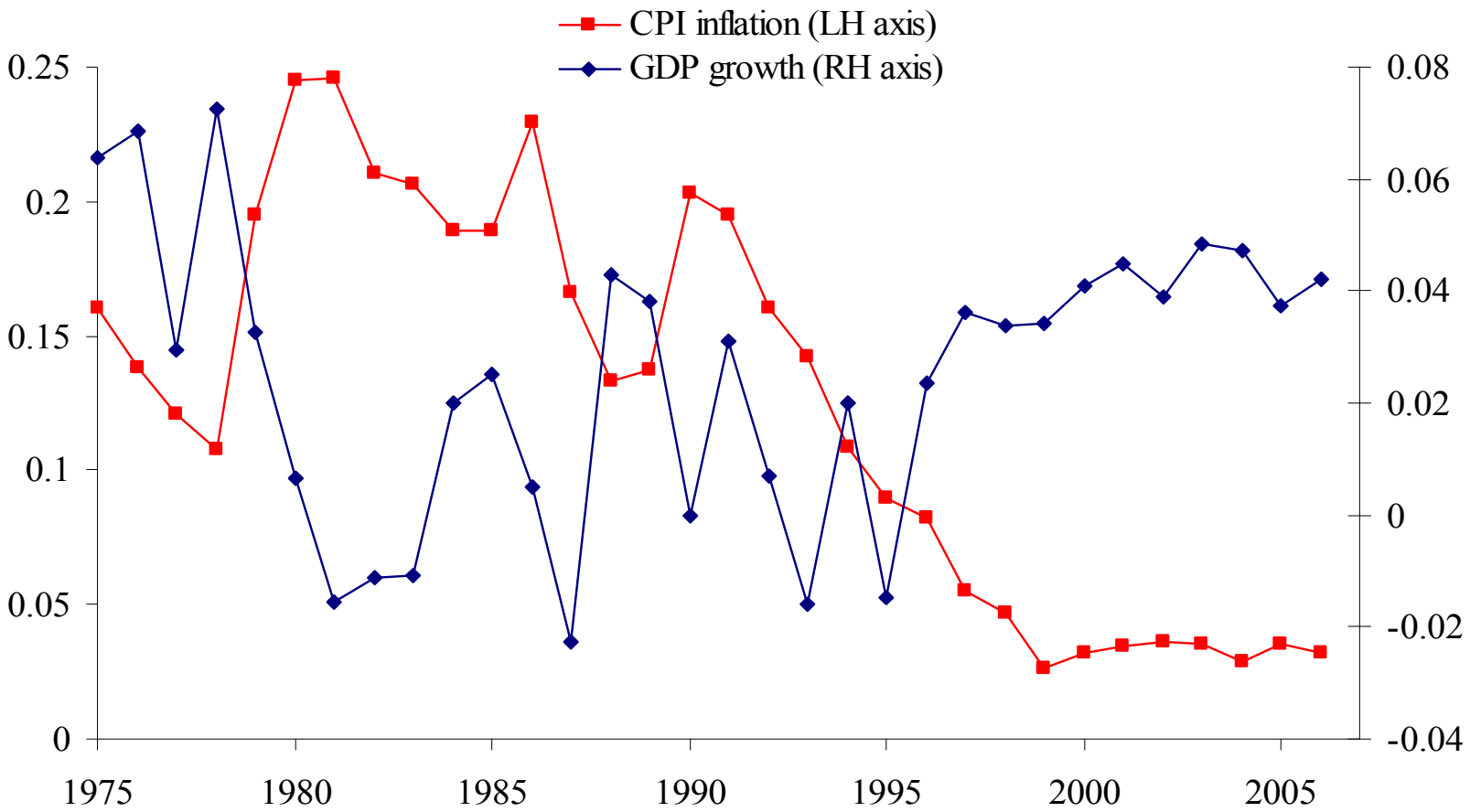


**Notes to Figure 2:**

(1) The ten-year break-even inflation rate reflects the average value of inflation expectations over the maturity of the index-linked bond. It is calculated as the difference between the nominal yield on a standard bond and the real yield on an inflation index-linked bond, issued by the same issuer and with similar maturity.
(2) Issued by the French Government linked to the French CPI excluding tobacco.
(3) Issued by the French Government linked to the euro area HICP excluding tobacco.
(4) Survey of Professional Forecasters conducted by the ECB on different variables at different horizons. Participants are experts affiliated with institutions based with the European Union. This measure of long-term inflation expectations refers to an annual rate of HICP expected to prevail five years ahead.
(5) Survey of prominent financial and economic forecasters as published by Consensus Economics Inc. This measure of long-term inflation expectations refers to an annual rate of inflation expected to prevail between six and ten years ahead.

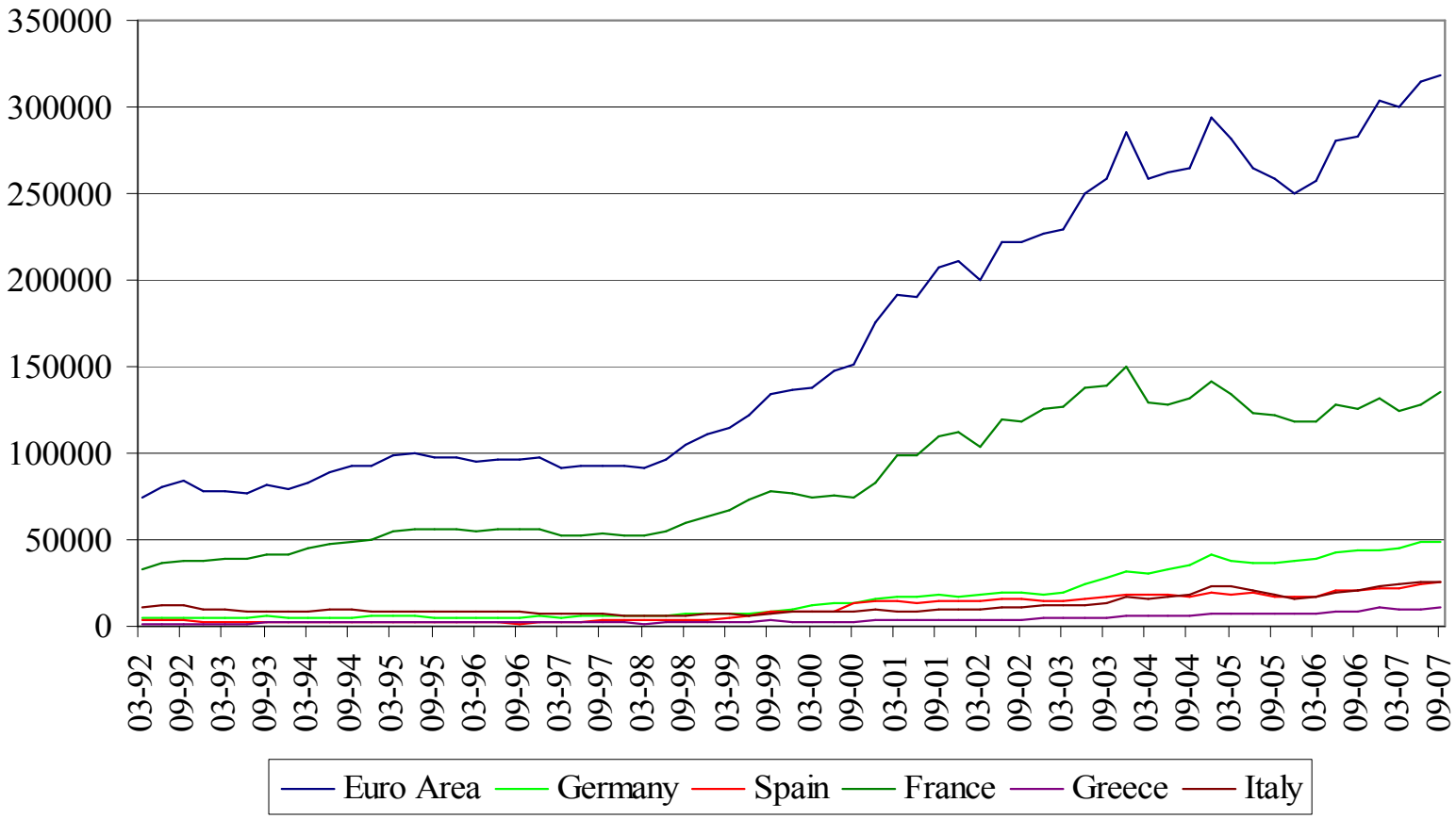
Source: ECB

## Figure 3: Growth and Inflation in Greece



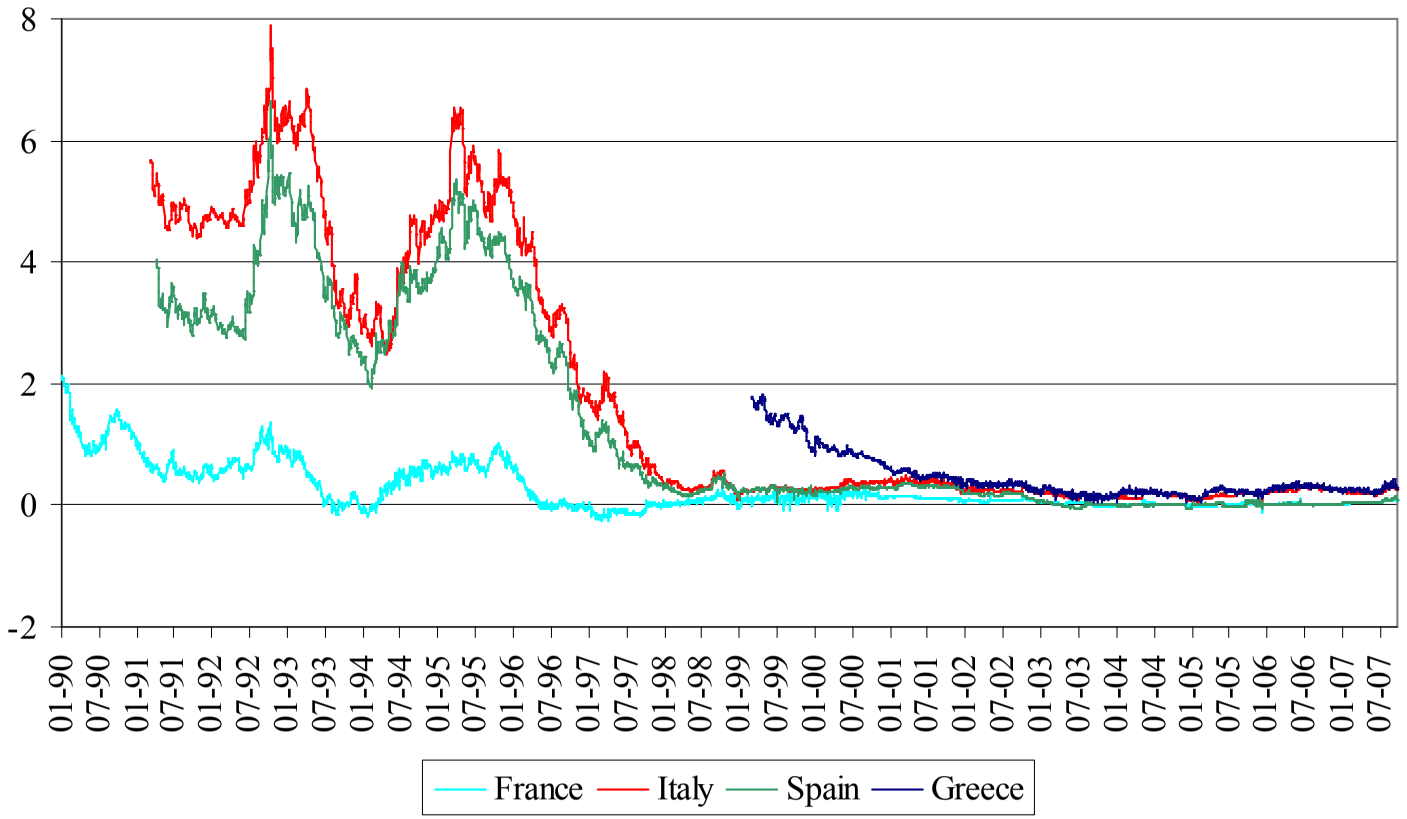

Source: National Statistical Service of Greece

**Figure 4: International Corporate Bonds by Country of Nationality: Amounts outstanding (millions USD)**



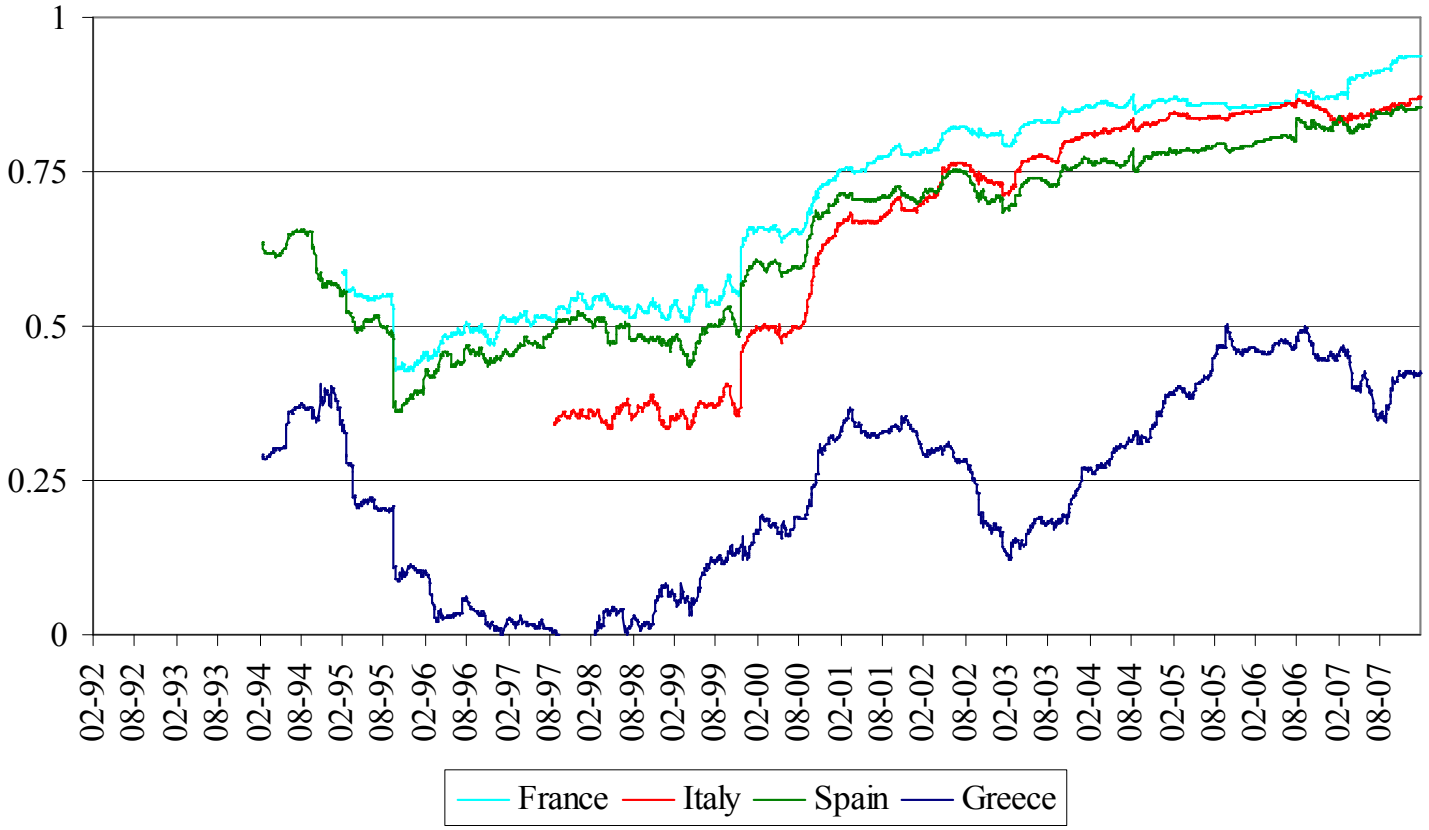

Source: US Bureau of Labour Statistics and ECB

**Figure 5: Spreads between 10-year benchmark european sovereign bond yields and the German benchmark (per cent)**



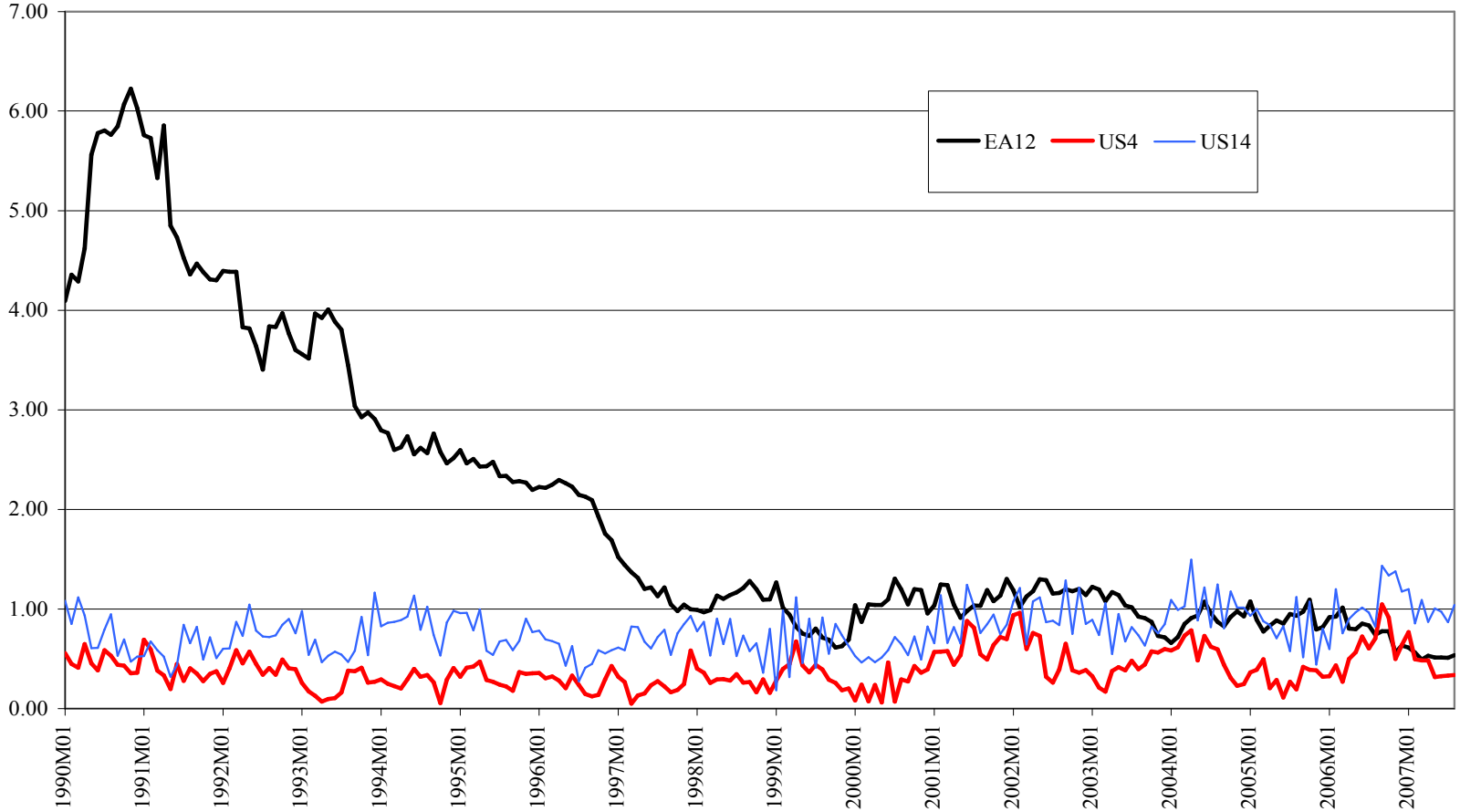

Source: Datastream

**Figure 6: Correlations between German and other European returns -on composite stock indices - Rolling 24-month window**



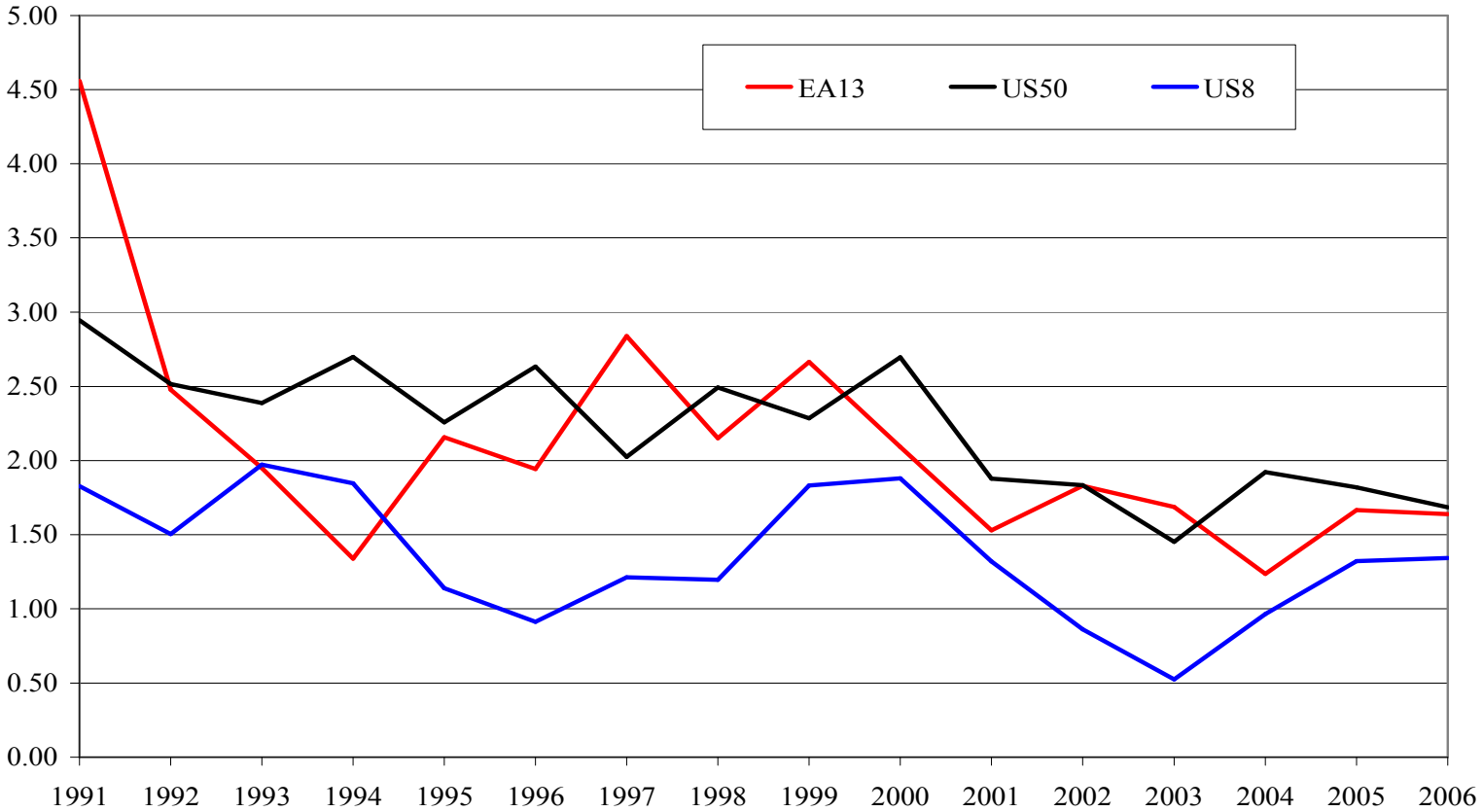

Source: own calculations using Datastream data

**Figure 7: Dispersion of annual inflation rates**
**within Euro Area (12 countries), US (14 Metropolitan Statistical Areas) and US (4 regions)**
(unweighted standard deviation in percentages)



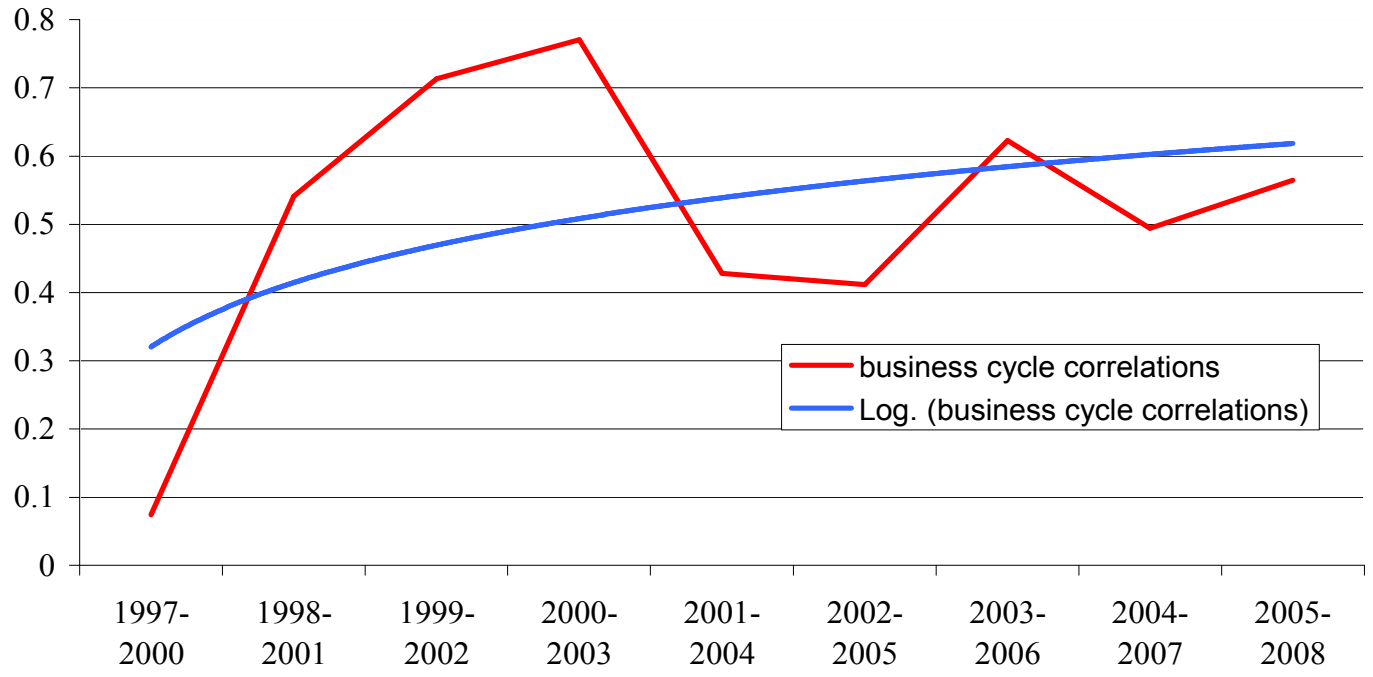

Source: US Bureau of Labor Statistics and ECB

**Figure 8: Dispersion of real GDP growth rates**
**within Euro area (13 countries), US (50 states and D. Columbia) and US (8 regions)**
(unweighted standard deviation in percentages)




Source: US Bureau of Economic Analysis and EU AMECO database

**Figure 9: Euro Area Rolling Business Cycle Correlations and Logarithmic Trend Line (1997-2008)**




Source: own calculations from EC AMECO database

Notes to Figure 9:

- The rolling business cycle correlations are constructed by calculating the pairwise correlation coefficients between all euro area countries for the various 4-year periods (1997-2000, 1998-2001, etc). The average of these coefficients is calculated for each time period.