## Overview

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I will concentrate on two issues—leaving to the other two panelists to cover the rest and all of yesterday's and today's presentations mainly focusing on European issues, if you permit. The first one is macroeconomic implications on information technology, especially in the case of Europe. What are our findings? And the second one is monetary policy in the information economy, also focusing on the European case.

On the macroeconomic implications of information technology, one interesting thing that was outlined in Martin Baily's paper, for instance, was the poor performance of Europe with respect to the United States between 1995 and 2000. One thing we should remember is that, in the last two decades as a whole, labor productivity has grown faster in Europe than in the United States. It is only the period between 1995 and 2000 that labor productivity has grown substantially faster in the United States than Europe. Certainly the remarkable performance of the U.S. economy in this last five-year period is undeniable. But one should also remember that, in terms of GDP growth per capita, the difference between the United States and euro area is due to developments in labor utilization and not only to difference in labor productivity growth.

In the period from 1995 to 1998, the growth rate in labor productivity of the ICT-producing sector in euro area, which amounted to 14.2 percent, seemed to a certain extent to be compatible with those in the United States—21.3 percent—especially because part of the difference may be related to different measurement techniques. I will not go into details on that; may I simply say that the explanations given of the developments made by Martin Baily in his paper about the difference in measurement techniques tending to show that if there is a bias, it should be against the United States is something I feel quite unclear and at least very arguable. We tend to believe the contrary.

As in the United States, the ICT-producing sector in the euro area is clearly the most dynamic in terms of growth in real value added. What is important to note is that the share of this sector in total value added is much smaller in the euro area—about 0.7 percent in 1998—than it was in the United States. The relative figure in the United States was, I believe, 1.8 percent. That certainly reduces the impact on growth of the development of the sector.

Finally, despite the smaller size of the ICT-producing sector in the euro area, it is the ICT-using sector (in particular services), which is clearly lagging behind the United States in terms of labor productivity.

Turning to more general views on macroeconomic implications of information technology, I tend to think that the portrayal stemming from Martin Baily's presentation is rather pessimistic on the economic prospects of the euro area. In particular, the monetary policy, far from being an obstacle to the use of information technology, is already contributing an economic environment that will allow for the advantages of information economy to be fully exploited. I will come back to that in a moment.

Basic assessment from many discussants yesterday and today, and which I totally share, is that the best policy for encouraging the New Economy is by encouraging strong competition. This, in turn, leads to the demand for new technology. High competition will certainly lead to the emergence of best-practice firms, well suited for globalized markets.

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One interesting thing that has been said by many and it, indeed, is in Martin Baily's presentation and here I quote, "The U.S. economy has the advantage of being this large single market and has been that way for a long time." And I fully agree with that. May I simply add that we are on our way. In particular, the European single market for goods and services, together with the free mobility of capital and labor, represents a major step toward increased competition in Europe. The creation of the single European market is fairly recent when you compare it with the U.S. story. It started in 1992. It is certainly even partial, since arguably some protective regulations do remain. But they are in the process of being dismantled, one after the other. It is the last step of a long journey that started in Europe in 1952.

It is undeniable that the most dynamic industrial economies of the past decade are those that pioneered the drive toward dismantling the monopolies, converting industries dominated traditionally by one or two state-dominated firms into more competitive and contestable markets. This is precisely the driving force behind the single European market. Together with the European single market, the introduction of the euro since 1999 has already contributed to an intensification of competitive pressure across firms—since cross-national comparison of prices has become more transparent and we certainly expect the introduction of bank notes and coins in 2002 will further enhance competition and restrict the capability of retailers to cultivate privileged market positions.

Regarding the European Central Bank (ECB), we believe that the main contribution of monetary policy to higher growth is to create a stable macroeconomic environment that is conducive to higher investments and, in particular, to the rapid adoption of new technology. Certainly, in turn, the rapid adoption of new technology will—through direct channels that means lower cost for information processing and communication, as well as indirect channels via increased competitive pressure—contribute to help curb inflationary pressures. Also, monetary union in Europe could help solve another institutional factor that has played a negative role—that is, the difference in the financial system's structure between the United States and Europe. Financial market

deepening improves the financing competition, in particular, for dynamic and risky firms that usually bring new technologies to the market. We have already seen quite an amount of evidence of that.

There are already signs that Europe is progressively closing the gap with the United States. In some areas of technology, for example, wireless communication, I believe that Europe is already leading the technological development globally. Certainly-and this was addressed by several speakers yesterday and this morning-structural reforms to remove rigidities in the labor market and the product markets are a key issue for the Europeans. They should be undertaken because the introduction of new technology requires flexibility of other factors that do include labor if production processes are to be reorganized most efficiently. Certainly, much is still to be done in the euro area. Much also has already been done. That is fostered clearly by monetary union because the monetary union is not only increasing the competitive pressures between firms but, if I may say, monetary union strongly increases the competition between governments to have the best possible practices in terms of flexible policies, and we have seen some results already. I note that between the first quarter 1997 and second quarter 2001, the unemployment has decreased by 3.2 percent to 8.3 percent. This is not a great achievement, but the progress is rather impressive.

The second topic I wanted to touch upon is monetary policy in the information economy. Here, I agree very much with the main message given in Michael Woodford's paper, which is the ability of central banks to conduct monetary policy does not cease with the information economy.

On the contrary, the rapid dissemination of information that characterizes the information economy can increase the effectiveness of monetary policy. However, I would like to stress the importance that the design of the monetary policy strategy does assume in the information economy. This derives from the special challenges that the information economy can pose, at least in the transition phase, on the conduct of monetary policy.

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I would like to focus on two arguments. First of all, rapid changes in the functioning of the economy and in the transmission mechanism of monetary policy driven by developments in information technology increase uncertainty about the model of the economy and the interpretation of the data. Second, improvements in information technology are making available rapidly an increasing amount of information to both central banks and the markets. Although it is an advantage that it allows better-informed decisions, it may pose a problem in processing and interpreting this information, leaving apart the problem of measuring traditional economic concepts, such as the potential outputs. But this is a key issue because, as Andrei Shleifer said yesterday, "More information available more rapidly does not improve the quality of information by itself."

The ECB does acknowledge explicitly the presence of intrinsic uncertainty in the economy, the rising complexity in assessing the economic situation. And we believe this rising complexity gives central banks a new role in interpreting available information, making communication with the public an increasingly important component of the overall monetary policy strategy. There seems, by the way, to be increasing attention in the markets to the economic assessment by central banks that goes beyond the mere attempt to forecast future monetary policy decisions. That could probably be interpreted as the result of the expertise shown and the trust gained by central banks over the years.

In this context, the monetary policy strategy, as a means for organizing, summarizing, cross-checking available information, and crossvalidating policy actions under alternative models of the economy, becomes a way to make evident the systematic behavior of monetary policy that was mentioned by several. Otherwise, the behavior of the central bank could be misunderstood as exploiting conflicting pieces of information and signals in order to pursue a discretionary policy.

In a world where information is quickly disseminated, the transparent communication of the central bank with the public is crucial. It should communicate the overall assessment of the economic situation, ensuring that policy decisions are correctly perceived by the markets. As stressed in the presentation by Mike Woodford, a transparent communication policy should help clarify the presence of systemic behavior in policy decisions. But that doesn't mean, as Bob Hall referred to, that central banks should deliberate in public. It maybe doesn't even mean that they should publish minutes. It certainly means that central banks must make clear the reasoning behind a decision.

May I turn to what Meryvn King said earlier this morning? We at the European Central Bank believe, as I understand he does, that if one wants to communicate monetary policy clearly, you basically need to have two elements. One element is what I think Mervyn called an "explicit commitment." In the case of the Bank of England, it is the inflation target. In the case of the European Central Bank, it is our definition of price stability. The first element is an explicit commitment.

The second element is a regular commentary of economic development versus the objectives of the central bank. While in the case of the Bank of England, it is the inflation report. In the case of the European Central Bank, it is the combination of the introductory statement of Willem Duisenberg at the press conference and the monthly bulletin that builds and details on that. In fact, we totally endorse the view that communication plays a key role in the present circumstances. In view of the information economy, we try our best to cope with that.