

TESTING THE SPEED LIMIT FOR EUROPE

3RD REPORT OF THE CEPS MACROECONOMIC POLICY GROUP

EXECUTIVE SUMMARY

The European economy seems to have improved over the last few years of solid economic growth combined with low inflation and declining unemployment. Our analysis indicates, however, that Europe's speed limit is unlikely to have increased much. There are few signs that a 'new economy' is emerging in the large countries of the euro area. Since 1995, labour productivity growth has actually fallen in Europe, whereas it has increased in the US. European labour markets have improved in the last few years, but this seems to have been the result of shifts in the composition of employment, rather than fundamental labour market reforms. In short, the potential growth rate has not increased in Europe. In our view, it remains between 2 and 2.5%. Under these circumstances, it is not surprising that the euro remains weak and inflation relatively high, even at modest growth rates.

Against this background, we reach the following main policy conclusions:

Structural reforms. Labour market reforms must start in earnest if the EU has any reasonable hope of meeting its own goal of increasing employment rates from 64% to 70% in 2010, as announced at the European Council of Lisbon. The reforms undertaken so far have concentrated on creating a second labour market for temporary contracts. This has been useful in the short run, but opening a second tier in the labour market cannot substitute for fundamental reforms across the entire spectrum of regulations that affect the cost of employing labour and the incentives to accept a job. The main areas that need to be addressed concern the cost of firing, the duration of employment benefits and the regulation of collective bargaining.

Monetary policy. In the current situation of deteriorating growth prospects and a persistently weak euro, any further easing of monetary policy should be undertaken cautiously. There is no long-term risk to price stability, but inflation will remain uncomfortably high in the short run. This constrains the scope for lowering rates without risking adverse effects on inflation expectations, which could undermine the continuation of wage moderation the lynchpin of the benign long-term outlook for price stability. Given the weak euro, monetary conditions are not tight anyway.

The ECB has been effective in making clear its views on the 'new economy', but it has been unable to communicate its policy to the markets. The monetary pillar should be scrapped, since its credibility has been further undermined by the recent adjustments to the money supply figures. A clearer focus on core inflation as the main policy target would constitute a good basis for a clear communications strategy.

Analysis

The starting point for our analysis was the fact that the data on the US have shown the emergence of a 'new economy': productivity growth has accelerated over the last five years and unemployment has fallen to almost unprecedented levels, while inflation still remains under control. Nothing comparable has happened in Europe. On the contrary, European labour productivity growth has fallen for the first time ever below the value for the US over the second half of the 1990s. Moreover, unemployment remains high, especially in the larger euro area countries, although it has fallen almost everywhere from the peaks of the mid-1990s. We analyse both aspects of the new economy separately.

Productivity

The acceleration of labour productivity in the US seems to be largely due to an increase in the efficiency with which existing factors of production are being used (i.e. to an acceleration in TFP growth), and to the accumulation of capital in the IT sector. By contrast, the IT sector in Europe contributes much less to productivity growth in the rest of the economy, and TFP growth, which used to be strong, has basically stopped. The result is that over the last five years the productivity growth differential has moved by almost 1.5% per annum in favour of the US. This is a very large shift by any historical standard. Will these trends be maintained?

The improvement in the US seems to be solidly based as the IT sector (where productivity gains are largest) is larger there than in Europe and productivity gains are underpinned by high investment, both in physical capital and R&D. Investment rates are falling at present, but they remain high compared to the beginning of the decade. Moreover, productivity growth has held up quite well so far despite the current economic slowdown, indicating a departure from past patterns.

There are no signs that the deterioration of productivity in Europe will soon be reversed. The gap with the US might narrow in the short run as IT investment there slackens after the irrational exuberance of last year. But closing the gap with the US in the medium run will be difficult. The EU (in particular the four large euro-area countries) may be irrevocably behind the US in terms of the key factor that has driven the extraordinary growth in productivity on the other side of the Atlantic, i.e. the share of the IT sector in the economy. Making European labour markets more flexible and removing barriers to competition in services will be important steps if Europe is to catch up with the US.

Labour markets

Over the last five years there has been a remarkable improvement in indicators such as unemployment and employment, especially in some of the smaller member states. But this has merely brought Europe back on average to the situation that prevailed in 1990. The performance of the EU is thus not encouraging, if looked at over a longer period.

Are there reasons to believe that the positive trend of the last five years will continue? Labour market reforms have been undertaken in many countries in a piecemeal fashion and do not amount to a fundamental change. Moreover, vacancy rates are close to record levels, although unemployment has declined only moderately, indicating a growing mismatch between supply and demand and potentially posing a threat to the wage moderation that has been in effect in recent years.

Most of the positive developments one can observe (wage moderation and a slight increase in employment rates since 1990) seem to be due to changes in the composition of employment: the relative importance of the sectors where regulation and collective agreements are most prevalent (e.g. manufacturing) is declining and the level of education of the work force is improving.

It thus seems that the slow structural improvement in European labour markets is coming about by default, and not as the result of major reforms undertaken by governments.

An examination of the composition of employment in Europe also indicates that the headline goals fixed in Lisbon and Stockholm (increasing the aggregate employment rate to 70% and the female employment rate to 65% by 2010) will probably not be achieved in the absence of reforms. In Europe, the employment rate of males in the 25-54 bracket is so high (close to 90%) that it cannot increase much further. The main difference with the US lies in the low European employment ratios of 'marginal' groups: younger workers, women (especially if less qualified) and older workers. Improvement in the 'employability' of these groups, as planned under the Lisbon process, requires action on such politically sensitive issues as incentives for early retirement, minimum wages and other barriers to youth employment. So far there is little sign that such action is forthcoming.

Monetary policy

Our analysis of monetary policy over the last year suggests that one can be misled by looking only at the official ECB interest rate moves because most of the tightening has been offset by the depreciation of the euro. Thus, the current stance cannot be characterised as tight by any historical standard. It is also difficult to understand why the ECB has only just now succeeded in adjusting money growth figures by deducting the holdings of non-euro-area

residents from a component of M3. The potential importance of being able to quantify this phenomenon has been known for a long time. The ECB has announced that a full accounting of the influence of non-euro area residents on money growth figures will be possible only by the end of this year. As this will come on top of the changeover to euro notes and coins, it will remain very difficult to interpret the money growth figures for some time to come.

Policy conclusions

There are no signs that a ‘new economy’ will emerge in Europe as quickly or as spontaneously as it did in the US. There are also some indications of a skills mismatch between supply and demand in the labour market. This is creating bottlenecks that are likely to further retard the development of the new economy.

The problems are most acute in the European labour markets, but they vary so much across member countries that a generalised EU-wide approach does not make much sense. Some generalisations can be made, however. First, the need for reforms seems to be most pronounced in larger member countries. Second, the piecemeal labour market reforms undertaken so far in these countries have skirted the really tough issues where decisive action is required if the Lisbon goals are to be reached:

- Reducing firing costs for the insiders (those with regular contracts)
- Cutting the duration of unemployment benefits
- Reforming collective wage bargaining
- Lowering taxes on labour
- Resisting the temptation to be pro-active via spending on labour market policies.

Collectively, these efforts could have a strong impact on growth, possibly increasing the potential by almost 1 full percentage point p.a. over a decade.

For these reasons, the ECB seems to have been justified in its scepticism about longer-term growth prospects for Europe. In this sense, the ECB has managed to avoid committing any major mistakes in its monetary policy stance. It has not been able to communicate effectively with the markets, however, thereby causing unnecessary volatility in the short run and jeopardising its own credibility. The ECB’s communications strategy thus needs to be improved. It will always be difficult, however, to clearly communicate a muddled monetary policy strategy: The official two-pillar approach should be simplified in favour of a clearer focus on (core) inflation. This change would not be particularly traumatic given that the monetary pillar has little credibility left anyway.

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INTRODUCTION

The European economy seemed to have started the new millennium under auspicious circumstances. Employment had increased continuously on the back of solid economic growth since the trough of the recession in 1995, while inflation had declined. During the first two years of the EMU project, it thus seemed that the European economy had entered a new era with high growth and low inflation. But as of mid-2001, the picture has become much darker. Inflation suddenly increased and stubbornly remains close to 3% while the core euro-area economies seemed to have experienced a sudden slowdown, raising the spectre of renewed stagflation. Moreover, the euro remains weak against the dollar, lingering about 30% below the level at which it started in January 1999.

All this raises the question whether Europe, or perhaps only the euro area, has already hit its speed limit. Could it be that the euro area cannot grow any faster than 2-2.5% without igniting inflation? Are European labour markets so distorted that unemployment cannot fall much below 8-10%? One has to pose these questions in view of the fact that the US economy has grown for several years at much higher rates without apparent inflationary pressures and the US unemployment rate has remained around 4.5% for some time.

Knowing how quickly the economy can safely grow is fundamental for policy-makers in many domains. This report will address in particular only those two for which policy decisions have to be made at the European level: the so-called Lisbon process and the European Central Bank.

In March 2000, the European Council of Lisbon adopted a goal to make the EU 'the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion.' In particular, it pledged that the overall EU employment rate should reach 70% by 2010 (whereas it now stands at around 62%). This goal seemed achievable if one simply extrapolated the positive developments up to the end of 2000, but the analysis of this report sheds some doubt on this optimistic view. A lot thus remains to be done in the peer review process that was inaugurated in Lisbon, but results have so far been meagre.

Knowing the optimal speed limit of the euro-area economy is also crucial for the ECB. It is a key input for its annual 'reference value' for money growth, which indicates how much liquidity the euro area can absorb while keeping prices stable. When the ECB indicates that it believes that the potential

growth rates of the euro area is only about 2 to 2.5%, it is putting down an important marker for all economic agents, from trade unions negotiating long-term wage contracts to long-term savers and investors.

But even for short-run decisions by the ECB, it is important to know the speed limit of the euro area, especially under the current conditions of persistently high inflation despite the sudden slowdown in the major euro-area economies over the last year. Under these circumstances, it becomes difficult for the ECB to rationalise further cuts in interest rates, which might be appropriate in a flagging economy – but only if one can be sure that inflation will soon subside.

This report of the CEPS Macroeconomic Policy Group addresses each of these issues in sequence.

The first chapter deals with the question of whether a ‘new economy’ is emerging in Europe. By ‘new economy’, we simply mean a sustained increase in the growth of potential output, and not exaggerated claims such as the complete disappearance of the business cycle. Our main conclusion is that there seems to be a fundamental difference between the US and the EU: the trend of accelerated US growth looks lasting (once the current downturn has been overcome) whereas Europe will not be able to keep pace. A two-speed world might thus be emerging, with the EU continuing to fall behind.

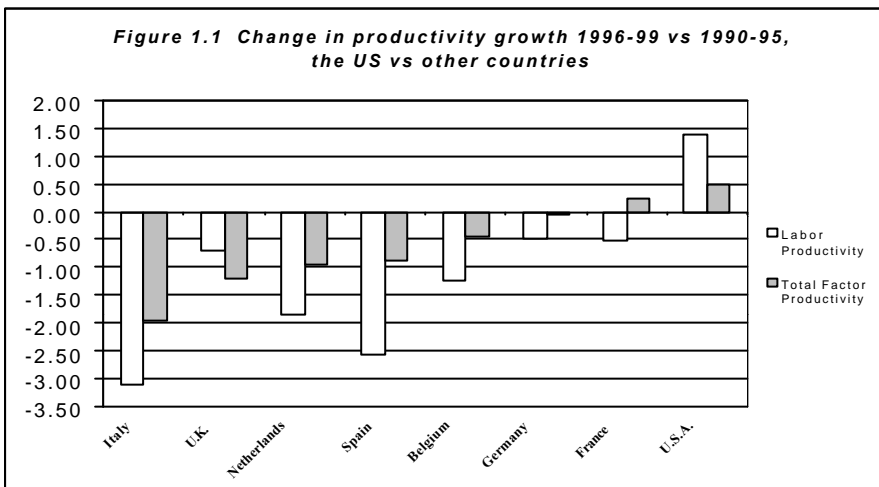
The second chapter turns to an analysis of European labour markets. Here we come to a similar conclusion: while there have been positive developments in recent years, there are few signs of a fundamental improvement. In the absence of further reforms it is unlikely that the EU will be able to match the US performance in terms of employment rates, as envisaged by the European Council at the Lisbon summit.

The third chapter looks to the challenges this assessment presents for the ECB. We find that the ECB has been justified in its scepticism about the existence of a new economy in Europe and hence in its cautious policy stance. We also find, however, that the tactical implementation of its policy fails to convince. The ECB itself has further discredited the monetary pillar with the recent adjustments to the data, and its policy decisions are difficult to reconcile with the officially announced strategy.

CHAPTER I

IS THERE A ‘NEW ECONOMY’ IN EUROPE?

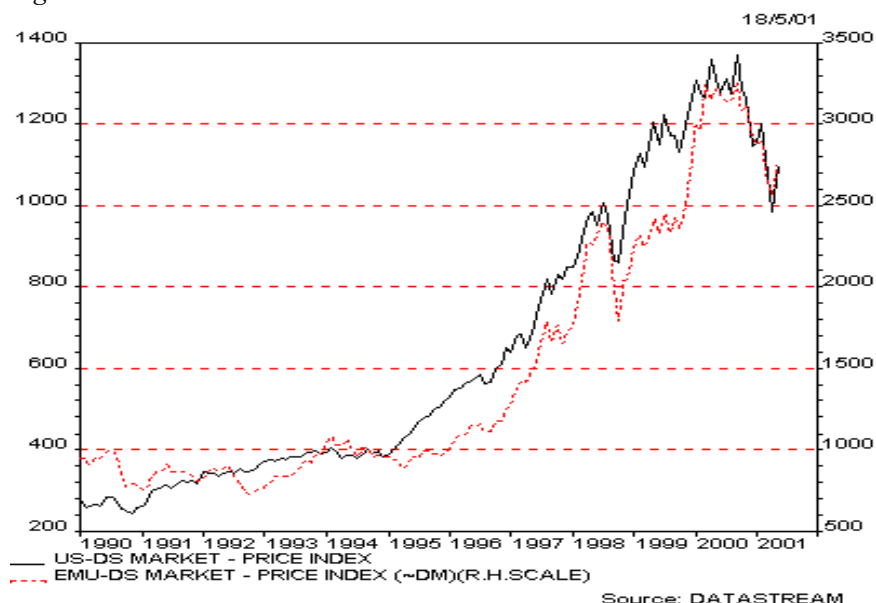
In the second half of the 1990s, while Europe was busy implementing the Maastricht Treaty and preparing for the single currency, something extraordinary was happening in the US. As shown in Figure 1.1, the growth rate of labour productivity almost doubled relative to the previous five years, while at the same time employment growth was also accelerating. Europe, on the other hand, was going in the opposite direction: labour productivity and total factor productivity *decreased* in most European countries in the second half of the 1990s. Employment growth accelerated and became positive in Europe (it had been negative in the first half of the 1990s), but it remained very low. The evolution of labour markets is discussed in more detail in Chapter II.



Source: Daveri (2000a).

Over this period, the US equity market improved even more dramatically than the real economy, as shown in Figure 1.2. By mid-2001, equity prices were – on average – still double what they were in the mid-1990s, despite the big sell-off earlier this year, and then partially corrected. But here, perhaps surprisingly given the different behaviour of its real economy, Europe mirrored the US.

Figure 1.2 S&P 500 and EuroStock in the 1990s



What explains this different behaviour of real macroeconomic aggregates in Europe and the US, despite almost identical behaviour in their respective equities?

There are several possible hypotheses:

- *It's a 'new economy'!* One possibility is that a 'new economy' has emerged in the US, fostered by revolutionary technological breakthroughs, and that it is coming to Europe too. The productivity gains of the last five years are a lasting improvement, and once the cyclical downturn is over, the US economy will resume growing at an average rate of 4% per annum. Europe is lagging behind, but the equity market is telling us that the new economy will eventually come here as well, perhaps without all the excesses of the US. Indeed, there are already some recent signs of improvements both in labour markets and productivity data in Europe.
- *It was just a 'bubble'...* The opposite (and much less likely) explanation is that the extraordinary US performance was just a 'bubble'. In this bleak view of the world, the US economic downturn will continue; once the bottom is reached, the bubble will burst leaving behind a trail of over-capacity and debt overhang in the balance sheets of US corporations and households. Europe was just lucky to escape the excesses of the US, but there is also not much hope of further

improvements. Europe would then be destined to return to its traditional mediocre performance.

- *A two-speed world.* Yet another possibility is that the acceleration of trend US growth will last (once the downturn is over), but Europe will not be able to keep pace and will continue to fall behind. In this view of a dual-speed world, the US has consolidated a comparative advantage in innovation (where most of the gains are), while Europe is too rigid and anti-competitive to reap the benefits of the technological innovations imported from overseas.

It is too early to rule out any of these scenarios. But which one is the more probable explanation of what is happening, and why? And how can economic policy in Europe make a difference, and increase the chances that Europe too will benefit from the 'new economy'? The goal of this first chapter is to find answers to at least some of these questions.

Productivity, equity markets and the new economy in the 1990s have been extensively studied in the US, but much less so in Europe. Thus in this part we start with a summary of the conclusions of existing research on the US economy, and then comment more extensively on European data to see whether a new economy is emerging throughout Europe as well. Specifically, we discuss the evidence on productivity and ask what inferences can be drawn from equity market valuations.

When talking about Europe, one must of course be careful because there is so much diversity among the EU-15 and also among the euro-12. But we find that a general pattern is emerging: the large countries do less well on most accounts while some, but not all, of the smaller countries do very well. But even the better-performing small countries just equal the average US performance.

Section 1 of this chapter documents the extraordinary surge in labour productivity in the US. In Section 2, we analyse the data on labour productivity in Europe. Sections 3 and 4 then contain a comparison between the US and Europe regarding two key aspects: capital deepening due to information technology (IT) spending and the influence of IT production on total factor productivity (TFP) growth. Sections 5 and 6 turn to the evidence from equity markets, first looking at the US and then asking whether Europe is really like the US. Section 7 provides a summary and concluding remarks.

1. Labour productivity in the US

Several recent papers have tried to dissect US data to understand what was behind the surge in productivity growth. They reach very similar conclusions, despite using different methodologies. Below we report the results of Oliner and Sichel (2000), who assume that time averaging over the last five years is sufficient to entirely remove the cyclical component from productivity growth. Similar results are reported by Jorgenson and Stiroh (2000).

Under standard assumptions (constant returns to scale technology and competitive and undistorted factor markets), the growth rate of labour productivity can be written as the sum of three components: improvements in labour quality, the growth of total factor productivity, and ‘capital deepening’. Capital deepening reflects the accumulation of capital per unit of raw labour. TFP growth is the residual growth rate of labour productivity that cannot be attributed to the accumulation of any type of measured capital, due to technical progress that improves the productivity of all inputs.¹

The central conclusion of Oliner and Sichel (2000) is that improvements in information technology account for a very large part (about two-thirds) of the recent acceleration of productivity growth. Their specific results are reported below in Table 1.1.

The new information technologies (mainly linked to computers and semiconductors) have contributed to aggregate labour productivity growth in two ways:

- First, through *capital deepening*. Each worker now has more IT capital than in the past. The contribution of IT capital deepening to labour productivity growth has doubled relative to the previous period, from about ½% to almost 1%. This reflects two separate phenomena: the income share of IT capital is now larger (because there is more of it around), and the rate of accumulation of this type of capital has also accelerated (with the exception of software, whose growth rate has remained stable over time).
- Second, by contributing to *TFP growth*. Technical innovations (i.e. TFP growth) have been particularly important in the IT sectors of the economy, where TFP growth has reached astronomical rates – see the bottom part of Table 1.1. The contribution of IT sectors to labour

¹ Specifically, let g_L denote labour productivity, $g_{K(i)/L}$ the growth rate of capital of type i per unit of labour, s_i the income share of capital of type i , g_H the growth rate of labour quality (i.e. human capital), s_L the income share of labour and g_A the growth rate of Hicks-neutral technical progress. Then, under the assumptions stated in the text, we have: $g_L = g_A + s_L g_H + \sum_i s_i g_{K(i)/L}$.

productivity through this channel has about doubled as well, rising from about ¼% to about ½%. Again, this acceleration reflects two factors: IT-producing sectors have become larger, and their rate of technical progress has accelerated.

*Table 1.1 Contributions to labour productivity growth in the US
(growth rates, non-farm business sector)*

	1991-95	1996-99
<i>Labour productivity</i>	1.53	2.57
<i>Contributions from:</i>		
<i>Capital deepening</i>		
<i>IT capital*</i>	0.51	0.96
<i>Other capital</i>	0.11	0.14
<i>Labour quality</i>	0.44	0.31
<i>Total factor productivity</i>	0.48	1.15
<i>Of which:</i>		
<i>TFP in computer sector</i>	0.16	0.26
<i>TFP in semiconductor sector</i>	0.12	0.39
<i>TFP in other non-farm sectors</i>	0.20	0.50
<i>Memo items:</i>		
<i>Growth rates of TFP in:</i>		
<i>Computer sector</i>	11.3	16.6
<i>Semiconductor sector</i>	22.3	45.0
<i>Other non-farm sectors</i>	0.20	0.51

* Hardware, software, communications.

Source: Oliner and Sichel (2000), Tables 2 and 4.

Note that these two channels through which IT capital contributes to labour productivity can be thought of as *use* and *production*, respectively. Capital deepening reflects *use* of IT capital goods. Typically, IT capital is accumulated in sectors that do not produce much IT capital themselves, such as services. TFP growth in the IT sectors of the economy, instead, probably reflects technical innovations associated with the *production* of these goods. This distinction is important because the US is a net exporter of IT goods, while Europe is a net importer. Hence, as discussed below, the contribution of IT sectors to aggregate TFP growth (i.e. through production) in Europe is likely to be much smaller than in the US.

The specific timing of the variation in productivity growth in the US raises two separate questions. The first question is why productivity growth accelerated only in the mid-1990s and not before. Even though innovations in information technologies date back to the early 1970s, the period between

the mid-1970s and the early 1990s is puzzling for its well known productivity slowdown. Why did it take so long for information technologies to improve productivity in the US? There is a large literature body of on this question, and it is beyond our goals to review it here. One possible answer is suggested by Greenwood (1997), who looks at how technological improvements affected productivity in previous historical episodes. At the outset, the introduction of new technologies required learning and adaptations that resulted in a productivity slowdown. It is only once these set-up costs are borne and the new technologies are sufficiently widespread that we see the benefits in aggregate productivity.²

The second and more pressing question is whether the acceleration of productivity growth will last, and for how long. There are two aspects to this issue. One possibility is that the events of the late 1990s just reflected a ‘bubble’ or an unusual business cycle: we may be treating as structural an acceleration of productivity that is mainly due to the business cycle or to a bubble. The data collected in Table 1.1 end in 1999. Early in 2000, IT spending accelerated, but then, essentially starting in second half of 2000, the US economy entered an abrupt slowdown and the accumulation of IT capital stopped: according to some estimates, IT corporate spending is expected to fall by more than 10% in the first half of 2001 (see *Financial Times*, 19 April 2001) and may remain sluggish for some time. The extent of the current US slowdown is still uncertain, but one thing seems clear: it was triggered by excessive capital accumulation in some IT sectors and by excessive optimism in the US equity market. Financing new ventures and technological innovation has now become much more difficult, and it is likely to remain so for some time. What will happen once the cyclical slowdown is over and the US economy resumes its trend growth rate? Are we going to see again the frantic pace of accumulation of IT capital witnessed in the late 1990s?

It is very difficult to answer these questions. On the one hand, the stock market exuberance certainly made it easier to finance IT spending. This exuberance is unlikely to return, however, and this could have a negative impact on future capital accumulation in the IT sector. On the other hand, many aspects of the IT revolution are still unfinished, and there seems to be ample scope to expand the opportunities offered by internet applications to daily business and household practices. Even sceptical observers seem to have come to this conclusion (see *The Economist*, 2001). Moreover, the rate at which IT capital becomes technically obsolete is very high. With product cycles of typically less than two years, IT spending might soon resume.

Does any boom lead to higher productivity? The decomposition of the acceleration of productivity in the late 1990s into a structural and a cyclical

² Greenwood (1997).

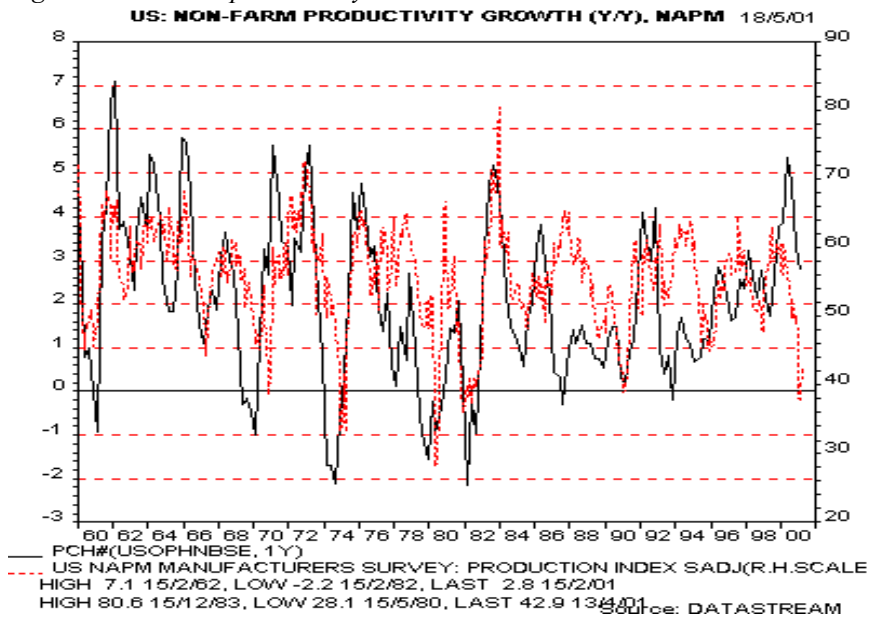
component is also controversial. Gordon (2000) argues that about half of the acceleration of average productivity growth in the second half of the 1990s is cyclical. Most of the other studies treat all the *average* acceleration as structural. It is just too early to tell who is right, even though the latest quarterly data available indeed signal a break with the past. The fact that US labour productivity fell during the first quarters of 2000 has been amply publicised, but the fall has been much less than one would have expected. As shown in Figure 1.3, at this stage in the business cycle (as measured by the NAPM index) labour productivity growth used to be much lower than it currently is. Moreover, productivity accelerated throughout the 1996-99 period, and was much higher at the end than at the beginning. Hence, by taking the average over the whole four-year period (as is done above), some cyclical component is certainly removed.

There is a second way to ask how long the accumulation of IT capital can last. We can think about current events as a transition towards a new steady state, and ask how long it would take according to some standard macroeconomic model. Specifically, suppose that the new technologies have permanently increased the *level* of TFP. Since this increases the marginal product of capital (inclusive of IT capital), it is now optimal for firms to accumulate more capital per unit of labour. That is, we should see some *temporary* capital deepening (a temporary increase in the capital-labour ratio), until the new steady state with a permanently higher capital-labour ratio is reached.

The question is how long can this adjustment process last. The answer is provided in Figure 1.4 below, which simulates a standard (Hansen-Rogerson-Wright) real business cycle model calibrated on the US economy.³ The figure portrays the reaction of labour productivity (starting from the steady state) after a permanent 1% shock to TFP (*in levels*) occurring in period 5. Periods are years.

³ We are grateful to Marco Maffezzoli who did the simulations. The technology is CES, with elasticity of substitution between capital and labour of 0.7.

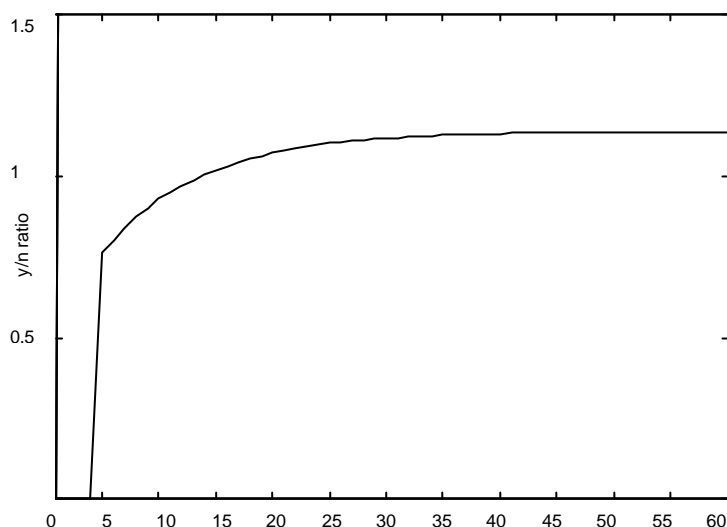
Figure 1.3 Labour productivity and NAPM



As one can see, the transition is not very long: after about five years, the economy has reached about half the distance from the new steady state. The results are not sensitive to the assumed elasticity of labour supply, nor to the size of the permanent productivity shock.⁴ This graph suggests that we should think carefully about the distinction between levels and rates of growth. From a macroeconomic point of view, recent events are entirely compatible with the view that there has been just a permanent increase in the *level* of productivity, and that the observed capital deepening is just a temporary and rather short-lived phenomenon.

⁴ To induce an acceleration of labour productivity growth of 1% on average over the first five years, as in the second half of the 1990s, we would need a permanent shock to the *level* of TFP as large as 4%. But the half-life of the adjustment to the new steady state remains about six years, a little more than depicted in the graph.

Figure 1.4 Labour productivity in the transition to a new steady state (labour productivity after a 1% permanent shock in TFP, in levels)



Source: Maffezzoli (2000).

In sum, it is no mystery why productivity growth accelerated so much in the US in the second half of the 1990s. To a large degree, this improvement was due to faster accumulation of IT capital and to the resulting technological improvements throughout the US economy. It is much more difficult to accurately anticipate what will happen once the ongoing cyclical slowdown is over. Will we see again the same rapid rate of growth of IT spending? Will it be accompanied by the same growth rate of TFP? And if so, for how long? There are solid arguments in support of the belief that the IT revolution is not over and that its benefits are yet to be exploited in many areas, ranging from health and education to many other services in households and businesses. If so, the transition to the new steady state can last much longer than suggested by the relatively humped path depicted in Figure 1.4. At the same time, we are unlikely to see a return to the extreme optimism and fast pace of the last couple of years. Some moderation in the growth rate of IT spending is likely to take place, once the cyclical correction is over.

2. Labour productivity in Europe

Evidence on the contribution of IT to growth in Europe is more difficult to assess, because data are less readily available. Nevertheless, a number of studies have recently tried to replicate the growth-accounting exercises

reported above, using data from European countries. See in particular Daveri (2000a), McMorro and Roeger (2001), Schreyer (2000) and Roeger (2001). Unfortunately, data limitations make it difficult to exactly compare the results of these studies with those reported above for the US. Moreover, according to some national statistical offices, data collection conventions used in Europe may imply that real GDP growth in Europe in the 1990s may have been underestimated relative to the US by almost ½%. In Germany, for example, a smaller adjustment is made for quality improvements in computers and related equipment, compared to the US (Deutsche Bundesbank, 2000). And in France and possibly other countries, a much larger fraction of IT business spending is attributed to intermediate consumption (and hence subtracted from value added) rather than to investment, compared to the US (Lequiller, 2001).

Other problems are more specific to each study. Hence we provide two sets of growth-accounting exercises, by Daveri (2000a) and by Roeger (2001).

In Table 1.2 below, we report the results of the European Commission (2000a), which in turn are based on Roeger (2001). These estimates suffer from several shortcomings. The definition of IT capital deepening used here excludes software. This is an important component, which in the US provided a contribution to growth of .27% over the 1996-99 period. Moreover, labour productivity refers to individuals, not to hours worked. Finally, these estimates do not account for changes in human capital. These two problems are potentially important and could imply an under-estimation of TFP growth: a shortening of the work week and a deterioration of labour quality may have taken place in the second half of the 1990s, and both would show up as a negative bias in our measure of TFP growth. The contribution of IT capital deepening to growth is estimated under alternative scenarios, reflecting alternative assumptions about the drop in relative prices of computers in Europe (holding quality constant) and about the price elasticity of IT investments, and thus we have a range of values. Finally, note that the definition of the time periods does not exactly coincide with that of Table 1.1. All of these problems make a precise comparison between the US and Europe very difficult. Overall, these data limitations may lead to some under-estimation of productivity growth in Europe in the second half of the 1990s,⁵ and to an under-estimation of the contribution of IT to productivity growth relative to the US.

⁵ McMorro and Roeger (2001) report indeed somewhat higher figures for EU labour productivity growth for the period 1996-2000. Since their US data are also somewhat different, however, this does not affect the comparison undertaken here.

Table 1.2 Contributions to labour productivity growth in the EU
(average yearly growth rates)

	1991-95	1995-99
<i>Labour productivity</i>	2	1.5
<i>Contributions from:</i>		
<i>Capital deepening</i>		
<i>IT capital (hardware, communications)</i>	0.2 – 0.3	0.3 – 0.5
<i>Other capital</i>	0.7 – 0.8	0 – 0.2
<i>Labour quality</i>	NA	NA
<i>Total factor productivity</i>		
<i>TFP in IT sectors (computers and semiconductors)</i>	0.1	0.2
<i>TFP in other non-farm sectors</i>	0.9	0.8

Source: European Commission (2000a), p. 21.

Nevertheless, the contrast between Tables 1.1 and 1.2 is so striking that we can probably draw some robust inferences about what was different between Europe and the US in the second half of the 1990s.

- The main reason for the drop in productivity growth in Europe between the first and the second half of the 1990s is the collapse in the accumulation of capital other than IT. This is not necessarily a symptom of inefficiency. On the contrary; earlier on, labour productivity growth was traditionally higher in Europe than in the US. This reflected substitution of labour with capital, because of the rise in overall labour costs, and was the other side of the surge in European unemployment. As documented in the next chapter, the second half of the 1990s saw wage moderation and faster employment growth in Europe relative to the first half of the 1990s. In Table 1.2 we see this as a sharp slowdown in the rate of capital deepening and a corresponding slowdown in labour productivity.
- The contribution to productivity growth of the IT sector in Europe was still very small in the second half of the 1990s. The overall contribution of IT (through TFP growth and through capital deepening) doubled in the second period relative to the first, like in the US. But the absolute value of this contribution remains very small, and it is at levels comparable to those of the US in the first half of the 1990s or even lower (recall that software was included in the US estimates but not in those for the EU). According to these data, Europe seems to lag behind the US by at least five years, if not more.
- Unlike in the US, there has been no rise in overall TFP growth: the increase in the IT sectors has been compensated by the drop of TFP

growth in the other sectors of the economy. In the US, by contrast, overall TFP growth has more than doubled, rising from .48% to 1.16%. This fact is important because sectoral attributions of TFP growth are not very reliable, since the output of services is certainly measured with error. If the value of intermediate services is mismeasured, this does not show up in the total TFP growth, but it certainly biases the sectoral estimates. Note that services are the main users of IT technologies, and are likely to have increased their productivity to a much greater extent than actually reported in the data.

A similar message is obtained from the estimates by Daveri (2000a), reported below for the major European countries. These estimates refer to productivity of labour hours and include software investment, even though there is still no adjustment for changes in labour quality. The data sources and methodology are also somewhat different from those employed by the European Commission.

Table 1.3 Contributions to labour productivity growth in the business sector of the large European countries (average yearly growth rates)

	<i>France</i>		<i>Germany</i>		<i>Italy</i>		<i>UK</i>	
	91-95	96-99	91-95	96-99	91-95	96-99	91-95	96-99
Labour Prod.	2.15	1.61	2.24	1.74	3.23	0.14	2.23	1.51
Contrib. from:								
IT capital	0.43	0.41	0.59	0.45	0.33	0.31	0.42	1.10
Other capital	0.90	0.16	0.79	0.49	1.46	0.34	0.23	0.02
TFP	0.81	1.05	0.86	0.80	1.45	-0.52	1.58	0.39

Source: Daveri (2000a).

According to this decomposition, in the second half of the 1990s, IT capital deepening in the large euro-area countries is of the same order of magnitude as estimated by the European Commission (Table 1.2 above), or even lower. It is quite surprising to note that the growth rate of IT capital per worker in France, Germany and Italy is estimated to be lower in the second half of the 1990s than in the first half. (The only exception to this pattern seems to be the UK.) This reflects the faster growth of employment in the second sub-period. TFP growth is not disaggregated by sector, but its overall behaviour is somewhat different from that estimated by the European Commission in Table 1.2: TFP growth falls in all large countries, except France. The fall of 2 full percentage points for Italy is unprecedented. The EU average drops somewhat less than this table suggests because TFP accelerated in some of the smaller member countries.

Overall, this table confirms the message summarised above. Both when looking at IT capital accumulation and when examining TFP growth, Europe

seems to lag well behind the US. The fact that independent studies using different methodologies reach similar findings is reassuring and suggests that the overall conclusions are robust.

We now discuss in more detail some of the differences between the US and Europe (and within Europe). We start with the accumulation of IT capital (i.e. capital deepening due to spending in IT goods and services), turning next to TFP growth and the production of IT capital.

3. The US vs Europe: Capital deepening due to IT spending

The smaller capital deepening contribution of IT in Europe compared to the US reflects both a smaller income share as well as a smaller rate of growth of IT capital. In particular, the European Commission (2000) estimates that in 1996 the income share of IT capital in Italy, France and Germany was about one-half that of the corresponding value in the US (see European Commission, 2000, Table 4, p. 14).⁶

As a result, overall IT spending in Europe is a much smaller share of GDP compared to the US. Moreover, and this is even more worrying, the gap with the US seems to have widened in the course of the 1990s. Nevertheless, within the EU there are several countries that spend as much or even more on IT than does the US – these are the small northern European countries and the UK. Naturally, this means that the European laggards (the four big countries of the euro area) are even more behind than the EU as a whole. These points are illustrated in Table 1.4 below, taken from Daveri (2000b).

*Table 1.4 Spending in information and communication technologies
(% of GDP)*

	(1)	(2)	(2)/(1)		(1)	(2)	(2)/(1)
	1992	1999			1992	1999	
US	7.49	8.63	1.15	EU	5.39	6.04	1.12
UK	7.21	9.18	1.27	France	5.81	5.65	0.97
Finland	4.72	5.91	1.25	Germany	5.40	5.14	0.95
Ireland	5.52	6.33	1.15	Italy	3.68	4.70	1.28
Sweden	7.61	9.57	1.26	Spain	3.95	3.89	0.98

Source: Daveri (2000b); *Data sources:* WITSA/IDC.

Table 1.4 shows that the share of IT spending in Europe in 1999 was about 2.5 percentage points of GDP smaller than in the US. Is this a small or a large number? At first sight it appears to be a negligible gap, but as noted by Daveri (2000a), it is not. As shown in the last column of Table 1.4, between

⁶ Daveri (2000a) estimates a similar or even larger gap between the large euro-area countries and the US in 1999.

1992 and 1999, the share of IT spending in Europe grew by 12%. At this rate of growth, it would take almost 30 years to fill the existing gap with the US (assuming that the US share does not rise any further)! Even if the share of IT spending in GDP were to grow at the same rate as it did in the US, the gap would be closed in a little less than 20 years. And in the meanwhile, the share of IT spending in the US is unlikely to remain constant. The data tell us that the main countries in the euro area have cumulated a very large technological gap relative to the US and to the more dynamic European countries. The gap is even larger when we look at production (rather than spending) in IT sectors, as discussed in the next subsection.

Could one not argue that US spending on IT was excessive and will fall now that the stock market bubble has burst? As mentioned above, there will be some retrenchment during 2001 and possibly beyond, but this should bring IT spending just back to approximately the 1999 level.

4. The US vs Europe: IT production and TFP growth

Table 1.1 shows that the small IT-producing sectors account for about one-half of all TFP growth recorded in the US. Since these sectors have become bigger in the second half of the 1990s, their contribution to growth has increased too. Note however that TFP growth in the US has accelerated in the same proportion in all sectors of the economy (see Table 1.1). This suggests that new technologies could have led to technical improvements or productivity-enhancing reorganisations also in IT-using sectors of the US economy, and not just in the sectors where it is produced. We will return to this point again in Section 5.

The behaviour of TFP growth in Europe is very different – see Table 1.2. First of all, TFP growth in the IT-producing sectors is much smaller (between $\frac{1}{2}$ and) than in the US. In part this is a statistical artefact (software is included in the US estimates of Table 1.1, not in those for Europe of Table 1.2). But to a large extent it reflects the smaller share of IT-producing sectors in GDP (even other than software). As in the case of IT spending, there is a technological gap between the US and Europe. But here, the gap has widened in the second half of the 1990s. According to Roeger (2001), production of computer hardware, telecommunications equipment and semiconductors in Europe has remained stable at around 1.2% of GDP throughout the 1990s, whereas in the US, this share has increased from about 1.6% in the mid-1990s to about 2% in 1998.

The second important difference between the US and Europe is that, according to Table 1.2, TFP growth has actually *decreased* in Europe in the aggregate of the non-IT sectors, while in the US, as already noted, TFP has accelerated in all sectors in the same proportion. This feature of the data, if correct, suggests that perhaps IT is not being used as efficiently in Europe as

it is in the US. Note that the estimates by Daveri in Table 1.3 also point to no improvement in overall TFP growth on average in Europe in the second half of the 1990s (recall that Daveri looks at hours worked, although he also makes no correction for possible changes in labour quality).

The contrast in TFP growth between Europe and the US in the late 1990s deserves some further thought, given the magnitudes involved. Microeconomic evidence suggests that in the US about ½ of aggregate TFP growth reflects a reallocation of resources within the sector, as inputs and outputs move from less to more productive establishments within the same sector (Haltiwanger, 2000). This microeconomic aspect of enhanced productivity could reflect a reorganisation of corporations and of productive processes that is induced by new information technologies. Brynjolfsson and Hitt (2000) argue along these lines quoting the evidence from several microeconomic studies: the use of new information technologies is associated with corporate restructuring and changes in work practices that increase firm efficiency and the productivity of its inputs. This suggests a natural question: could it be that European institutions, and in particular the EU's widespread labour and product market regulations, hinder the adoption of productivity-enhancing microeconomic changes that instead are made possible by new technologies in the US? To conclusively answer this question, we would need much more data, and unfortunately most of the micro evidence is available only for the US. But Bassanini, Scarpetta and Visco (2000) show some suggestive aggregate data. They compute the change in aggregate TFP growth for several OECD countries, between 1980-90 and 1990-98. The acceleration is indeed faster in those countries that, according to OECD classifications, have more flexible labour markets (i.e. less binding employment protection legislation) and less regulated product markets.

5. Evidence from the equity markets: The US

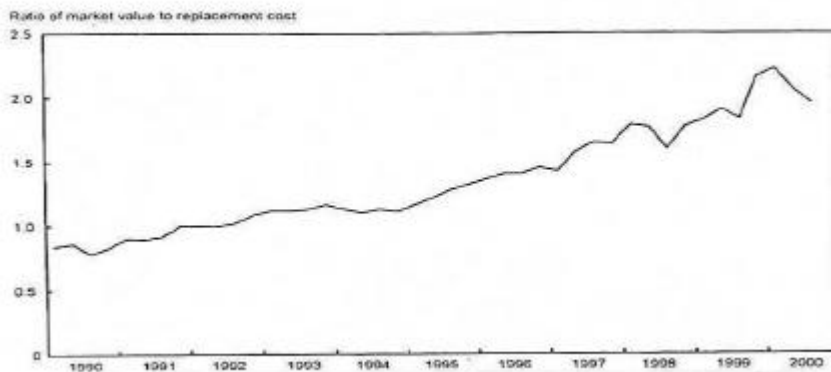
The second half of the 1990s was also a period of unprecedented surge in equity valuations. Even after the sell-off of the last six months, US equities are still twice as high as they were in the mid 1990s – see Figure 1.2 above. In fact, the surge in equity values seems to dwarf the acceleration in productivity growth discussed in the previous subsections. The behaviour of equity markets is even more remarkable if one considers that it has not been accompanied by a corresponding increase in tangible capital (defined as plant, equipment and inventories).⁷

⁷ The inclusion of IT capital such as software does not change this puzzling feature of the data, given their still relatively modest size as a fraction of GDP.

In a recent series of very interesting papers, Robert Hall has argued that the surge in equity values in the 1990s implies that US corporations have accumulated large amounts of intangible assets (Hall, 2000, 2001a and 2001b). He makes two central assumptions: i) equity prices correctly reflect underlying values (i.e. ability to generate future cash flows); and ii) the technology has constant returns to scale, product markets are competitive and all factors of production can be fully adjusted in the long run. This in turn implies a zero expected profits condition, so that capital earns zero rents in the long-run equilibrium since its supply is perfectly elastic. He then computes the stock of intangible assets by subtracting tangible capital from the total financial claims on corporations (equity plus debt). The value of intangible assets has increased to huge amounts in the second half of the 1990s, from negligible amounts in the early 1990s to about 100% of GDP a decade later (see Hall, 2001b, Figure 4). Since then equity markets have fallen, of course, but not enough to change the overall implications of these estimates.

The value of intangible assets can also be inferred from Tobin's q (the ratio between the market and the replacement value of capital), as usually estimated. This measure, like those produced by Hall, rose dramatically in the 1990s, again implying that, under Hall's assumptions, US firms have accumulated huge amounts of intangible capital. As shown in Figure 1.5 below, the US Council of Economic Advisers (2001), for instance, estimates that Tobin's q has risen from about 1 in the mid-1990s to over 2 in 2000.

Figure 1.5 Tobin's q in the non-financial corporate sector in the US



Source: Council of Economic Advisers (2001), Figure 3.13.

Intangible assets are unobserved, by definition. What are they in practice? Quoting from Brynjolfsson and Hitt (2000, p. 34), they are technical and organisational know-how acquired in the past through expenses, such as 'the costs of developing new software, populating a database, implementing a new business process, acquiring a more highly skilled staff, or undergoing a major organisational transformation'. All these costs are typically recorded as personnel costs; that is, they are deducted as expenses and go unaccounted for in a firm's balance sheet.

There is strong evidence that such intangible assets are complementary to IT capital: acquiring new and more powerful information technologies makes it possible or convenient to re-organise productive processes inside a firm, or delegate production outside a firm, in ways that would have been impossible without these innovations. Hall (2001b) estimates the value of intangible assets disaggregated by sector. Intangible assets are exceptionally high in services, the big users of new IT capital. As shown in Table 1.5 below, the ratio of intangible to tangible assets ranges between 9 and 15 in sectors such as insurance, banking and engineering services. The same ratio ranges between 5 and 3 in sectors such as electronic and electrical equipment, and it is close to 0 in mining or airline transportation.

Table 1.5 Ratio of intangible to tangible assets in 2-digit industries, 1998

Range: 9 to 15	Range: 3 to 5	Range: -1 to 1
Insurance	Electronic & electrical equip.	Metal mining
Depository institutions	Industrial machinery	Utilities
Engineering services	Health services	Oil and gas extraction
Non-depository Institutions	Instruments	Primary metal industries
Business services		Transportation by air
		Auto repair

Source: Hall (2001b), Figure 5.

These data are suggestive of why the huge accumulation of intangible assets in the US occurred in the mid-1990s and not earlier. The mid-1990s were the years in which the internet revolution began to have major practical business implications, leading to major restructuring and reorganisations in services and other heavy users of IT. Labour market data also corroborate this idea: as noted in Hall (2001a), the wage premium of college graduates relative to less-skilled workers increased significantly during the 1990s. College graduates are typically the workers engaged in the production of intangible assets as defined above.

According to Hall (2001a), the full story behind the US performance in the 1990s can thus be summarised as follows. Technological progress in processing information led to a sharp increase in the demand for this new kind of capital, the technical and organisational know-how that Hall calls 'e-capital'. This higher demand increased the equilibrium wages of the type of labour used to produce e-capital. And in a relatively short time period it also led to an increase in the stock of e-capital accumulated by US corporations. It is a suggestive and plausible story, although the recent and very sudden stock market correction suggests that it may still be too early to assess its full relevance.

This idea has several important implications that also bear on the growth-accounting exercises discussed in the previous subsections. If Hall is right, the growth-accounting data reported in Table 1.1 for the US are wrong, for two opposite reasons: on the one hand, we have incorrectly attributed the time spent by many college workers to the production of output, when instead they were producing e-capital. This mistake has led us to underestimate true TFP growth. On the other hand, we have omitted an important factor of production, namely e-capital. This second mistake has the opposite effect, namely we have overestimated TFP growth. Hall (2000) shows that this second effect is likely to dominate the first one, so that correct TFP growth is negligible, once we account for the accumulation and use of e-capital. Essentially, e-capital is very much like endogenous technical progress, and not surprisingly, once we correctly account for it as one of the factors of production, the role of exogenous and unexplained TFP growth diminishes.

Note however that this new description of the US in the 1990s does not change the conclusion that US inputs have become much more productive during the last decade. On the contrary, the traditional growth-accounting exercise, which only looks at GDP growth, forgets that US enterprises produced a large amount of another very valuable (although intangible) output in the 1990s, namely e-capital. The accumulation of e-capital should really be treated as production of output, although it is retained within the firm. Once we account for this enlarged definition of output, we find that the productivity of capital has indeed increased considerably in the 1990s. Assuming the existence of a single type of capital goods (tangible and intangible capital), Hall (2000) estimates that the average net product of capital has increased a lot, to 18-22% based on alternative assumptions (compared to 10-12% in the previous decade). This acceleration in capital productivity largely corresponds to an extraordinary accumulation of intangible capital retained within the firm, and has not yet resulted in large cash flows to the owners of capital.

6. Equity markets: Is Europe really like the US?

What about Europe? No study similar in reach to those of Hall has ever been made on the basis of European data. But a look at equity prices as depicted in Figure 1.2 suggests that the surge in market values compared to the value of tangible assets is likely to have been of a similar order of magnitude in the US and Europe. To know for sure, we would need data on the replacement value of existing tangible capital stock in Europe, as well as data on all financial claims on EU corporations. Since investment in the 1980s and early 1990s was larger in Europe than in the US, tangible assets could account for a greater proportion of the market value of firms in Europe compared to the US. But the magnitude of the surge in equity valuation is so large that the overall message is likely to be similar to that in the estimates by Hall.

Table 1.6 below provides some rough estimates and suggests that indeed a large accumulation of intangible assets could have taken place in Europe in the second half of the 1990s. The table compares the market-to-book values of large corporations in the euro area, aggregating data by countries (individual firm data are weighted by their book values).⁸ We break down the market-to-book value ratio into its two components, namely the price-earnings ratio (market value divided by earnings) and the return on equity (earnings divided by book value). The data reproduced in Table 1.5 are not strictly comparable to those used by Hall (2001a). In particular, we made no adjustment for the existence of debt and financial claims different from equities: both market and book values only refer to equities outstanding. Nevertheless, the table shows that indeed the market-to-book value of European corporations more than doubled between 1995 and 1999. The order of magnitude of this surge is comparable to that recorded in the US – see Figure 1.5 – even though it varies by country and it is exceptionally high in Finland. The inference that we are tempted to draw from Table 1.6 is that there was indeed a substantial accumulation of intangible assets in Europe in the second half of the 1990s, totalling about as much as in the US.

But if this inference is correct, we have a puzzle. According to the productivity data reviewed in the previous sections, Europe has a large technological gap relative to the US, and productivity actually fell in the late 1990s, unlike in the US. And yet, the equity markets are telling a radically different story: it is hard to tell Europe and the US apart in Figure 1.2 and in Table 1.6. It seems that in Europe too there was a huge accumulation of intangible e-capital, just like in the US, and hence in all likelihood a corresponding increase in productivity, once we treat this accumulation of e-

⁸ The data cover about 65% of market capitalisation in the euro area. Market and book values refer to the end of year. The data have been kindly provided by Epsilon Associates SGR.

capital as production. Which data shall we believe? The aggregate GDP data or the equity markets?

Table 1.6 Market-to-book value, PE ratios and return on equity in Europe

		1999	1998	1997	1996	1995
Belgium	M/B	2.48	2.54	1.97	1.62	1.35
	ROE	0.12	0.13	0.13	0.13	0.13
	PE	20.55	19.65	15.56	12.23	10.20
Germany	M/B	3.09	2.78	2.75	2.08	1.87
	ROE	0.08	0.12	0.11	0.10	0.11
	PE	37.35	24.10	25.97	20.87	17.01
Spain	M/B	3.23	2.84	2.23	1.65	1.41
	ROE	0.13	0.12	0.11	0.10	0.12
	PE	24.90	23.10	19.93	16.29	11.73
Finland	M/B	13.50	3.83	1.93	1.93	1.41
	ROE	0.22	0.18	0.19	0.13	0.18
	PE	56.92	21.14	10.17	14.66	7.83
France	M/B	3.84	2.56	2.01	1.69	1.42
	ROE	0.09	0.11	0.09	0.07	0.03
	PE	40.54	23.58	21.44	23.54	47.48
Ireland	M/B	2.38	4.35	3.68	2.56	2.34
	ROE	0.20	0.18	0.20	0.18	0.20
	PE	11.69	24.05	18.77	14.03	11.75
Italy	M/B	3.27	3.10	2.29	1.59	1.29
	ROE	0.13	0.12	0.09	0.10	0.08
	PE	24.23	26.59	24.31	16.33	17.18
Netherlands	M/B	3.66	3.62	2.90	2.47	2.04
	ROE	0.16	0.16	0.18	0.14	0.16
	PE	23.15	21.99	16.39	17.16	13.05
Portugal	M/B	2.16	1.71	1.38	1.25	0.68
	ROE	0.13	0.13	0.11	0.14	0.10
	PE	16.95	13.50	12.29	8.98	6.53

Source: Epsilon Associates SGR.

There are two possible reasons for discounting the message from the equity markets. One obvious reason is that equity prices on both sides of the Atlantic may reflect mistakes or irrational herd behaviour. Investors see that US banks or other US firms trade at several multiples over their book values, and adjust the valuation of their European equivalents accordingly, without much reflection. Indeed, a feature of the data reported in Table 1.6 is that the

surge in the market-to-book values is mainly due to an increase in PE, not to an increase in earnings. This is not a surprise: PE ratios are typically much more volatile than ROE. Even with rational investors, market values (i.e. estimates of the ability to generate future earnings) are frequently revised and likely to reflect unavoidable mistakes. Hence we should refrain from reading too much into short-term variations in market values. This is certainly a possibility, but it is not a very comforting thought for an economist. The surge in equity prices in Europe since the mid-1990s has been so large and widespread that, if not driven by fundamentals, it would reflect a huge mistake in evaluation by market participants.

A second possibility is that the surge in the value of European equities reflects an increase in the expected future rents earned by the owners of European corporations, and not necessarily an increase in their productive capital. Remember Hall's assumption of zero rents and competitive product markets. If this assumption is violated, a higher market value of corporations could just reflect the fact that the same quantity of capital is now earning bigger rents. This is not implausible: the service sector in particular is still highly protected in Europe, and factors of production are likely to earn substantial rents. But why did the rents earned by owners of corporate capital rise in the mid-1990s? It is not easy to argue that overall monopoly rents have increased in Europe. If anything, in fact, the opposite is likely to have happened: The birth of the single currency is likely to have increased consumer surplus and decreased monopoly rents.

But the 1990s have also been a period of increased privatisation and corporate restructuring in Europe. Privatisation has not always been accompanied by liberalisation, transferring monopoly power from the public to the private sector. At the same time, the goal of maximising shareholder value has gained priority over other corporate goals. Finally, as documented in the next section, wage moderation and marginal de-regulation of labour markets have taken place. These events (privatisation without much liberalisation, the spreading of shareholder value and labour market reforms) are likely to have shifted corporate rents towards capital owners and away from other stakeholders (unions, politicians or special interest groups). If so, rents earned by corporate owners may have risen in the 1990s, despite the fact that overall monopoly rents have remained constant or have even diminished.

Table 1.7 below provides some indirect evidence that could support this interpretation. We have aggregated the same data displayed in Table 1.6 by sector (rather than by country). The pattern that emerges is quite different from that of the US – see Table 1.5. Unlike in the US, users of IT such as financial services do not have exceptionally high ratios. Instead, some of the high ratios are found in telecommunications, where privatisation without liberalisation (at least initially) has taken place in several countries. At any

rate, the differences between Europe and the US highlighted by Tables 1.7 and 1.5 suggest that the rise in European market values in the late 1990s cannot be easily interpreted as an accumulation of intangible assets.

Table 1.7 Market-to-book value in euro sectors

Sectors	1999	1998	1997	1996	1999/96
Basic materials	2.2	1.7	1.7	1.7	1.29
Consumer (cyclical)	3.6	2.7	2.3	2.1	1.71
Consumer (non-cyclical)	5.7	6.8	3.7	3.3	1.7
Energy	2.6	2.7	2.8	2.2	1.18
Financial	2.6	2.7	2.3	1.6	1.6
Healthcare	4.7	3.8	2.8	2.0	2.4
Independent	2.4	0.8	0.8	0.6	4.0
Industrial	2.4	1.9	1.8	1.5	1.6
Technology	8.2	4.0	3.3	2.3	3.6
Telecommunications	7.1	3.8	2.5	2.0	3.6
Utilities	2.7	3.1	2.3	2.0	1.36

Source: Epsilon Associates SGR.

The main reason why profits (and hence share prices) continued to increase after 1999 might be the wage moderation that one can observe in the EU, and especially in most of the euro area in recent years. Chapter II discusses this phenomenon in more detail.

7. Conclusions

In the course of the 1990s, the US economy has undergone an exceptional transformation. On the one hand, there has been a remarkable acceleration in labour productivity growth, while new jobs were created at a very fast pace. On the other hand, the surge in equity values led to an unprecedented accumulation of wealth and intangible assets. Probably some excesses were reached on both phenomena. Some of the surge in equity values was due to overly optimistic expectations, which in turn led to some over-investment and unsustainable growth. A cyclical correction is in place, and we don't know yet the full extent of the productivity slowdown that unavoidably accompanies it. Stock markets have been through ups and downs in recent

months, but they are still so much above the level of five years ago that a large accumulation of intangible capital is likely to have taken place.⁹

Despite the uncertainties about the short term, the most likely scenario is that much of the improvements we have seen in the second half of the 1990s are here to stay in the medium to long run. Moreover, there is credible evidence to suggest that these improvements are linked with the internet revolution and more generally with the diffusion of the new information technologies (the so-called 'new economy').

Could the EU data so far be understood in terms of the idea that technological progress requires '*reculer pour mieux sauter*' à la Greenwood (1997)? At the outset, the introduction of new technologies might have forced European firms to learn and adapt, resulting in the productivity slowdown. Could one argue that now that these set-up costs have been borne and the new technologies are sufficiently widespread throughout Europe, that the benefits in aggregate productivity should now appear? The data on the low investment in IT and the much smaller importance of IT production in Europe lead us to doubt this hypothesis.

Europe's performance in the second half of the 1990s has been disappointing. There have been notable improvements in the labour market, and we comment on them in the next chapter. But labour productivity actually deteriorated in the second half of the 1990s, and from the aggregate data there is little evidence to suggest that new technologies have brought about tangible economic benefits. Moreover, in terms of IT spending and diffusion, the large European countries seem to lag behind the US by decades, not years, and the gap may be widening. Aggregate data are not easy to reconcile with the view that Europe is just lagging behind the US by a few years, and that we are about to see an acceleration of productivity growth in Europe as well. European equity markets portray a more optimistic picture, since they mirror the US, at least in the aggregate. But, unlike in the US, the surge in equity values in Europe could reflect a redistribution of rents towards owners of corporate capital, and not necessarily an accumulation of new productive intangible assets.

⁹ US and European stock markets have been highly correlated over the last few months. This is not what one would expect if the causes behind the increase in share prices are different. However, the impression that a bubble has burst is confined to the high-tech sectors on both sides of the Atlantic. In these sectors exaggerated expectations of ever-lasting fast growth might have created a bubble. Outside the high-tech sectors (i.e. NASDAQ and Neuer Markt), share prices have varied much less, falling little and regaining most of the terrain lost earlier this year. The Dow Jones (DJ) in particular is again rather close to historical highs, whereas the Euro DJ-Stoxx has recovered less of the terrain it lost over the last year.

This assessment of recent events on both sides of the Atlantic is still very uncertain. We do not know the extent of the US excesses, and European countries lack adequate data with which to perform reliable comparisons with the US. But if we believe the data, they portray a rather bleak picture for Europe. The stark difference in economic performance between the US and the large countries in the euro area is not about to disappear. Of the three possible scenarios we outlined in the Introduction (a new economy everywhere, a US bubble or a two-speed world), the latter seems the most plausible. This raises two difficult questions. Why do we see so few benefits from the new IT in Europe compared to the US? And what can policy-makers do about it? The possible answers to these questions are highly speculative. Since we suspect the answer will be found in the poor functioning of Europe's labour markets, we turn to a closer analysis of them.

CHAPTER II

ARE LABOUR MARKETS IMPROVING IN EUROPE?

Potential output growth could be enhanced not only by higher productivity growth, but also through a higher level of equilibrium employment. In the EU, this would mean a reduction in the high structural unemployment rate observed during the 1980s and 1990s and an increase in labour force participation rates, which are low compared to the US. The fact that falling unemployment rates and intense employment growth were possible in the last few years without creating excessive inflationary pressure may lead one to the conclusion that such an improvement is on its way. A closer look at the process of labour market reform in several EU countries and recent trends in the European labour markets, however, casts some doubts on the plausibility of this optimistic expectation.

We thus analyse in this chapter the extent to which labour market reforms in the EU have already produced a reduction of European structural unemployment. We start with a presentation of the facts, i.e. the trends in employment and unemployment rates. We then turn in the second section to an evaluation of the labour market reforms that have been undertaken so far.

1. Trends in employment and unemployment rates

Let's begin with the good news. In the second half of the 1990s, the average annual employment growth in the EU was positive and substantial, around 1.25% (compared to -0.2% in the first half of the 1990s and to 0.5% in the 1980s).¹ Over the same period, the unemployment rate decreased from 10.7% in 1995 to 9.3% in 1999 (from 11.3% to 9.9% in the euro area). However, the good news has to be qualified by at least three observations:

- i) The increase in employment and the fall in unemployment in the second half of the 1990s led to average employment and unemployment rates in the EU that are roughly at the same levels as the early 1990s.
- ii) There are some indications that the recent improvements are just driven by the business cycle rather than being structural in nature.

¹ Similar figures apply to the euro area.

- iii) In many EU countries, it is difficult to single out labour market reforms that unambiguously deliver a reduction of the structural unemployment rate.

The first two observations are discussed in the present section, and the third observation is addressed in the second section.

If one wants to identify changes, hopefully improvements, in structural unemployment (often referred to as the NAIRU – non-accelerating inflation rate of unemployment), one has to look at developments over a period that comprises a full cycle, or at least one has to compare two points in time during which the economy was at a similar cyclical position. This is clearly not the case if one compares 1995 with 1999 or 2000, because in 1995 the European economy had only recovered weakly from the trough of the recession, whereas in 1999-2000, it was (and hopefully still is in 2001) close to potential output. It seems thus much more appropriate to compare the recent data (1999-2000) to data from a decade ago, i.e. 1990, when Europe was also on an upswing – that time on the back of the positive expectations created by the internal market programme. This is the time horizon we will adopt wherever possible.

Looking at the 1990-99 period yields a less reassuring picture for Europe. During this period, the unemployment rate fell from 5.7% to 4.3% in the US, while in the EU it actually *increased* from 8.4% to 9.3%.² Differences in labour market performance between the EU and the US are also evident when one looks at the employment rate, that is, the proportion of the working-age population (15 to 64 years) that is employed. During the same period, the US employment rate increased from 72.2% to 73.9%. In the EU it also improved, but it went up only from 61.6% to 62.6%, so that the differential slightly widened between both areas.³

This comparison of the situation at the beginning of the 1990s and at the end of the same decade is the combined result of the worsening of the European labour markets during the first half of the 1990s, and the recuperation of employment in the second half of the same decade. Whether this evolution is of a cyclical nature or whether, on the contrary, the recent employment creation in some EU countries (notably France and Spain) is an indication of

² During the year 2000, the unemployment rate was significantly reduced in the EU. However, it still remains slightly above the 1990 level.

³ The range of variation of employment rates both within EU countries and within regions of certain EU countries is even higher than the difference between the EU and the US. We will disregard this variation in what follows, but it should be kept in mind that an increase in the employment rate in the EU would require either a significant reallocation of employment across regions or much higher geographical mobility among workers than currently exists.

a structural improvement is very much debated. Conceivably, the process of reforms undertaken since the mid-1980s together with some effects of the new economy ought to have decreased structural unemployment and brought up potential growth. Alternatively, it could be that reforms are not so fundamental and effective, that the new economy is still to come and, hence, that the increase in the employment rate is a purely cyclical phenomenon.

One way to shed light on this question is to analyse the labour market situation of different population groups, since there have been significant changes in the composition of labour demand and of labour supply in both the US and the EU. Thus, Table 2.1 reports both the unemployment and the employment rates of men and women for three different age groups (16-24, 25-54 and 55-64) in 1990 and 1999. Table 2.2 gives the same information regarding the four largest countries in the euro area (Germany, France, Italy and Spain) which jointly represent around 85% of the euro area's labour force.

Table 2.1 suggests a clear difference between the US and the EU. Unemployment rates fell in the US for all population groups over the 1990-99 period. By contrast, unemployment rates in the EU increased for almost all age groups (the only exception being women, aged 15-24). This is replicated in most of the four largest countries in the euro area as shown in Table 2.2. Unemployment rates increased for all groups in Germany, France and Italy, while in Spain they decreased mainly for young workers and, slightly, for men aged 25-54.

As for employment rates, the most noticeable feature is the increase of female employment in both areas: while male employment rates fell by 0.2 and 2.7 percentage points in the US and in the EU, respectively, the proportion of working age women who are employed has increased by 3.6 percentage points (p.p.) in the US and by 4.4 p.p. in the EU. This increase is driven specially by women in the 25-54 age group. The four largest countries in the euro area show some variations on this theme. The increase in the employment rate of women aged 25-54 is higher in Germany and Spain than in France and Italy. Employment rates of young workers and men aged 55-64 actually fall in most cases. And most noticeable is the fall in the employment rate of young and prime-aged (25-54) men in France and Italy.

This comparison graphically illustrates the rationale behind the EU Council's pledge in Lisbon in March 2000, to regain the conditions for full employment, in which the overall employment rate should increase to 70% by 2010 (and to 60% for women.) During the Stockholm European Council of March 2001, intermediate targets referring to 2005 were approved. These are 65% for the aggregate employment rate, and 55% for the female employment rate. Another target of 50% in 2010 for the employment rate of the population 55-64 years of age has also been introduced.

Table 2.1 Employment and unemployment rates in the EU and the US in the 1990s

	European Union						United States					
	1990			1999			1990			1999		
	All	Men	Women	All	Men	Women	All	Men	Women	All	Men	Women
Unemployment rates												
All	8.4	6.7	10.8	9.3	8.2	10.9	5.7	5.7	5.6	4.3	4.1	4.4
15-24	15.8	13.6	18.3	17.2	16.1	17.0	11.2	11.6	10.7	9.9	10.3	9.5
25-54	6.8	5.3	9.2	8.1	6.9	9.2	4.6	4.6	4.6	3.2	3.0	3.4
55-64	6.5	6.2	6.9	7.8	8.4	7.7	3.3	3.8	2.8	2.7	2.7	2.6
Employment rates												
All	61.6	74.7	48.7	62.6	72.0	53.1	72.2	80.7	64.0	73.9	80.5	67.6
15-24	46.2	50.7	40.6	39.5	43.4	35.5	59.8	63.5	56.1	59.0	61.0	57.0
25-54	73.4	88.8	55.6	75.5	86.3	64.7	79.7	89.1	70.6	81.4	89.0	74.1
55-64	38.3	53.1	25.4	38.6	48.3	27.8	54.0	65.2	44.0	57.7	66.1	50.1
	Variation unemployment rate EU, 1990-99			Variation employment rate EU, 1990-99			Variation unemployment rate US, 1990-99			Variation employment rate US, 1990-99		
All	0.9	1.5	0.1	1.0	-2.7	4.4	-1.4	-1.6	-1.3	1.7	-0.2	3.6
15-24	1.4	2.5	-1.3	-6.7	-7.3	-5.1	-1.3	-1.3	-1.2	-0.8	-2.5	0.9
25-54	1.3	1.6	0.0	2.1	-2.5	9.1	-1.4	-1.6	-1.2	1.7	-0.1	3.5
55-64	1.3	2.2	0.8	0.3	-4.8	2.4	-0.6	-1.1	-0.2	3.7	0.9	6.1
	Differences unemployment rate US-EU, 1990			Differences unemployment rate US-EU, 1999			Differences employment rate US-EU, 1990			Differences employment rate US-EU, 1999		
All	-2.7	-1.0	-5.2	-5.0	-4.1	-6.5	10.6	6.0	15.3	11.3	8.5	14.5
15-24	-4.6	-2.0	-7.6	-7.3	-5.8	-7.5	13.6	12.8	15.5	19.5	17.6	21.5
25-54	-2.2	-0.7	-4.6	-4.9	-3.9	-5.8	6.3	0.3	15.0	5.9	2.7	9.4
55-64	-3.2	-2.4	-4.1	-5.1	-5.7	-5.1	15.7	12.1	18.6	19.1	17.8	22.3

Source: OECD, *Employment Outlook*, 2000.

Table 2.2 Employment and unemployment rates in the four largest euro-area countries in the 1990s

Panel A

	Germany						France					
	1990			1999			1990			1999		
	All	Men	Women	All	Men	Women	All	Men	Women	All	Men	Women
Unemployment rates												
All	6.3	5.4	7.5	8.7	8.3	9.3	9.2	7.0	12.1	11.8	10.3	13.7
15-24	5.6	5.3	6.0	8.5	9.1	7.7	19.1	15.3	23.9	26.6	24.2	29.7
25-54	5.7	4.7	7.1	7.9	7.3	8.7	8.0	5.9	10.7	10.7	9.0	12.6
55-64	11.6	9.9	15.2	13.9	12.8	15.5	6.7	6.0	7.6	8.7	8.7	8.7
Employment rates												
All	64.1	75.7	52.2	64.9	73.1	56.5	59.9	69.7	50.3	59.8	66.8	52.9
15-24	56.4	58.7	54.0	46.8	50.7	42.8	29.5	33.6	25.2	20.8	24.3	17.3
25-54	78.0	86.9	59.6	78.2	87.0	69.2	77.4	89.8	65.1	77.0	85.7	68.5
55-64	36.8	52.0	22.4	38.5	48.0	28.9	35.6	43.0	28.8	34.2	38.9	29.6
	Italy						Spain					
	1990			1999			1990			1999		
	All	Men	Women	All	Men	Women	All	Men	Women	All	Men	Women
Unemployment rates												
All	9.9	6.5	15.8	11.8	9.0	16.4	16.1	11.8	24.4	15.9	11.1	23.2
15-24	28.9	23.4	35.4	32.9	28.6	38.3	30.1	23.2	39.7	28.5	21.7	37.3
25-54	6.6	3.9	11.3	9.5	6.9	13.6	13.1	9.3	20.6	13.9	9.2	21.0
55-64	1.8	1.7	2.0	4.9	4.6	5.6	8.1	8.4	7.2	9.9	9.4	11.2
Employment rates												
All	53.9	72.0	36.4	52.5	67.1	38.1	51.1	71.0	31.6	53.8	69.6	38.3
15-24	33.3	38.8	27.8	25.5	30.3	20.8	38.3	47.4	28.7	33.9	41.3	26.2
25-54	68.0	90.2	46.2	66.9	84.3	49.5	61.1	85.5	37.2	65.6	84.2	47.6
55-64	32.0	50.9	14.7	27.5	40.8	15.0	36.8	57.2	18.1	34.9	52.4	19.1

Source: OECD, *Employment Outlook*, 2000.

Panel B, Table 2.2, cont.

	Variation unemployment rate Germany, 1990-99			Variation employment rate Germany, 1990-99		
All	2.0	2.9	1.8	0.8	-2.6	4.3
15-24	3.5	3.8	1.7	-9.6	-8.0	-11.2
25-54	2.2	2.6	1.6	0.2	0.1	9.6
55-64	2.3	3.1	0.3	1.7	-4.0	6.5
	Variation unemployment rate Italy, 1990-99			Variation employment rate Italy, 1990-99		
All	1.9	2.5	0.6	-1.4	-4.9	1.7
15-24	4.0	5.2	2.9	-7.8	-8.5	-7.0
25-54	2.9	3.0	2.3	-1.1	-5.9	3.3
55-64	3.1	2.9	3.6	-4.5	-10.1	0.3
	Variation unemployment rate France, 1990-99			Variation employment rate France, 1990-99		
All	2.6	3.3	1.6	-0.1	-2.9	2.6
15-24	7.5	8.9	6.2	-8.7	-9.3	-7.9
25-54	2.7	3.1	1.9	-0.4	-4.1	3.4
55-64	0.9	2.7	1.1	-1.4	-4.1	0.8
	Variation unemployment rate Spain, 1990-99			Variation employment rate Spain, 1990-99		
All	-0.2	-0.7	-1.2	2.7	-1.4	6.7
15-24	-1.6	-1.5	-2.4	-4.4	-6.1	-2.5
25-54	0.8	-0.1	0.4	4.5	-1.3	10.4
55-64	1.8	1.0	4.0	-1.9	-4.8	1.0

This goal cannot be reached merely by reversing the relatively small fall in prime-aged male employment rates because for this group employment rates remain high, close to the US level. The large increase in the overall employment rate set as a goal in Lisbon can be reached only if the employment prospects of the groups with low employment rates are improved. Employment policies should thus focus on young, female and older workers close to retirement. There is general agreement that the lower employment rates of young workers and adult women with low levels of education is very much related to standard labour market practices, e.g. minimum wages, firing costs, collective bargaining procedures, etc. The very low employment rate for the population above 55 is due to the lower female participation among the oldest cohorts and, more importantly, to early retirement and the use of social insurance schemes to reduce labour supply (see Gruber and Wise, 1998).

The analysis of the labour market situation by age and gender already thus yields some insights as to where to aim labour market policies. Another

aspect is more relevant for the discussion of the relationship between labour markets and the new economy. This is the relative supply of skilled and unskilled workers. The new economy should increase both the rate of technological progress and its bias in favour of skilled labour. The impact of recent technological advances on the relative employment prospects of skilled workers and unskilled workers can thus be quite different and should depend on the ease with which the relative wage can adjust and, therefore, on labour market institutions, such as employment protection and wage-setting.⁴

Table 2.3 reports the composition of the population and employment rates by age, gender and educational attainments in the euro-4 (Germany, France, Italy and Spain) and in the US as of 1999. As for differences in relative supply of skilled labour (as measured by the population weights),⁵ the US still has a higher proportion of population with university degrees, although this gap is closing very fast, as new cohorts in some countries of southern Europe are entering university at a higher rate. As for employment rates, the US has larger employment rates for all age groups, with the differentials being noticeable in particular for youths, workers in the 55-64 age group and women aged 25-54 with low levels of education.

There are thus large differences in the employment rate among the population groups considered above. Moreover, there have been large changes in the supply of different educational groups. This suggests that one should analyse the changes in the composition of employment by gender and educational attainments in some detail, which we proceed to do below in Tables 2.4 and 2.5.

⁴ This has been an extensively researched topic in labour economics. See, for instance, Bound and Johnson (1992), Katz and Murphy (1992), Nickell and Bell (1995) and Snower (1999).

⁵ There are a couple of reasons for this difference: i) the traditionally low participation of women in university education in southern Europe which has started to catch up with male participation only since the mid-1980s, and ii) the existence of successful dual systems of vocational training in Germany.

Table 2.3 Labour supply and employment rates by age, gender and educational attainments, US and the four largest euro-area countries, 1999

Age/ Educational attainment	Population weights (%)				Employment rates (%)			
	Euro-4		US		Euro-4		US	
	Men	Women	Men	Women	Men	Women	Men	Women
16-24	9.9	9.9	9.3	9.0	39.2	31.1	57.9	56.0
<i>Secondary level</i>	4.0	4.3	5.1	5.3	44.5	37.3	69.1	65.4
<i>Primary level</i>	5.9	5.6	4.2	3.7	33.4	21.1	41.9	37.3
25-54	31.5	31.0	33.0	34.5	86.0	63.1	87.8	74.3
<i>Tertiary level</i>	5.9	4.4	9.6	9.6	91.4	79.3	93.5	82.8
<i>Secondary level</i>	11.7	11.0	19.2	21.0	86.9	68.6	87.8	74.7
<i>Primary level</i>	13.9	15.6	4.2	3.9	80.4	44.9	74.5	50.9
55-64	8.3	8.5	6.3	6.8	44.4	24.6	66.5	50.3
<i>Tertiary level</i>	1.1	0.4	1.7	1.3	62.4	46.3	78.7	61.9
<i>Secondary level</i>	2.3	1.8	1.2	4.3	42.6	29.6	66.1	52.6
<i>Primary level</i>	4.9	6.3	3.4	1.3	37.5	17.9	50.2	31.1
TOTAL	49.7	50.4	49.0	51.0	71.2	51.1	79.1	67.6

Notes: Tertiary level of education: ISCED 5-7. Secondary level of education: ISCED 3-4. Primary level of education: ISCED 1-2.

Sources: *European Labour Force Survey* (1999) and *Current Population Survey* (March Supplement, 1999).

Table 2.4 Changes in employment rates and the composition of the population in the US, UK and the Euro-4, 1992-99 (p.p.)

	US	UK*	Euro-4	Germany	France	Italy	Spain
Change in the employment rate	+3.3	+3.4	+2.3	-1.2	+0.3	+4.0	+6.2
Variation due to the change in the employment rates of highly educated workers	0.15	0.50	-0.3	0.22	0.6	-0.14	-0.67
Variation due to the change in the employment rates of workers with secondary education	1.53	1.31	-0.2	0.32	0.1	-1.11	0.43
Variation due to the change in the employment rates of workers with primary education	0.93	-1.36	-0.9	-0.75	-3.1	-1.47	2.22
Variation due to the change in the employment rates of women with a high degree of education	0.04	0.27	-0.1	0.36	-0.3	-0.04	-0.31
Variation due to the change in the employment rates of women with secondary education	0.96	0.34	0.4	1.22	0.2	-0.31	0.29
Variation due to the change in the employment rates of women with primary education	0.05	-0.84	-0.1	-0.23	-1.2	-0.35	1.35
Variation due to the change in the composition of the population	0.63	2.97	3.8	-0.95	3.8	6.76	4.21

* For the UK, the variation is over the period 1993-99.

Sources: European Labour Force Survey and Current Population Survey.

Table 2.5 Changes in employment rates and in the composition of the population in selected EU countries, 1992-99 (p.p.)

	Belgium	Netherlands	Portugal	Austria *	Sweden*	Finland *	Denmark
Change in the employment rate	+2.4	+7.7	-0.6	-0.2	-3.0	+11.3	+3.1
Variation due to the change in the employment rates of highly educated workers	0.25	1.31	-0.07	0.05	-1.46	1.05	-0.50
Variation due to the change in the employment rates of workers with secondary education	0.18	4.59	0.07	0.10	-1.74	4.05	1.42
Variation due to the change in the employment rates of workers with primary education	-0.73	2.71	0.34	-0.85	-0.40	1.37	0.01
Variation due to the change in the employment rates of women with a high degree of education	0.28	1.05	-0.06	0.00	-0.76	0.42	-0.45
Variation due to the change in the employment rates of women with secondary education	0.39	3.73	0.16	0.73	-1.18	1.71	0.29
Variation due to the change in the employment rates of women with primary education	0.39	1.40	1.55	-0.46	-0.26	0.48	-0.16
Variation due to the change in the composition of the population	2.70	-0.96	-0.95	-0.44	0.61	4.83	2.13

* For Austria, Sweden and Finland, the variation is over the period 1995-99.

Sources: European Labour Force Survey and Current Population Survey.

Tables 2.4 and 2.5 broke the aggregate employment rate down into two components:

- i) *Changes in the composition of the population*, i.e. the result of differences in population weights, holding employment rates equal at the 1992 levels (the last row), and
- ii) *Changes in group-specific employment rates*, i.e. the results from differences in employment rates, holding population weights at the 1999 level (the most important elements are shown from the second to the last but one row).⁶

Because of data availability, the base year this time is 1992 instead of 1990, but this should not affect the conclusions.

The first three entries in the first row show that over this period the overall change in the employment ratio was broadly similar in the US, the UK and the euro-4 group. But there are considerable differences in the origins of this common development. In the US the increase in the employment rate is mostly explained by the higher employment rates of all groups (all the entries in the US column have a positive sign).⁷ By contrast, the change in the aggregate employment rate in EU countries is mostly driven by the population composition effect. This is particularly the case for the euro-4 group where the entry in the last row (effect of change in composition of population, 3.8 p.p.) is actually larger than that of the first row (overall increase in employment, 2.3 p.p.). This implies that if the employment rates of all groups considered here had merely stayed constant, the employment rate in the euro-4 would have increased by 3.8 p.p., instead of the 2.3 p.p. actually observed. The actual outcome was lower because employment rates fell in some important subgroups, such as workers with less than tertiary education. The picture for the UK is a bit different, but definitely closer to that of the euro-4 than of the

⁶ The decomposition is given by the following expression:

$$e^{1999} - e^{1992} = \sum_i a_i^{1999} e_i^{1999} - \sum_i a_i^{1992} e_i^{1992} = \sum_i e_i^{1992} (a_i^{1999} - a_i^{1992}) + \sum_i a_i^{1999} (e_i^{1999} - e_i^{1992})$$

where e^t is the employment rate at year t , a is the weight of group i in total population and groups are defined by age (15-24, 25-54, 55-64), gender, and education (tertiary, secondary and primary).

⁷ With the only exception (not shown in the table) of men aged 55-64 with primary education.

US. The employment rates of both males and females with primary education declined, offsetting small gains elsewhere and a large composition effect.

It is also worth noting that in the US, it is the rise in employment rates of workers with less than tertiary education that accounts for the largest share of variation in the aggregate employment rate. In this regard, the two EU countries with the largest increase of the employment rate over this period, e.g. the Netherlands and Spain, show different patterns. In the Netherlands, the rise of the aggregate employment rate is driven by the increase of the employment rates of all groups, even to a greater extent than in the US. By contrast, the contrary, in Spain the composition effect explains almost 70% of the variation of the aggregate employment rate and eight of the eighteen groups considered have decreasing employment rates over the period.⁸

Summing up, there are clear indications of an overall improvement in the labour market in the US with increasing employment rates for all groups, whereas the improvement in the EU comes mainly from shifts in labour supply across population groups of different ages and educational attainments. Put differently: overall employment in Europe increased because more and more people have a higher level of education and thus work in occupations for which the barriers to employment resulting from collective wage agreements, working hours and firing rules are less important.

The analysis presented so far has one encouraging implication: the effect from the changes in the composition of the population are bound to continue as a result of continuing changes in the age composition of the population and of the continuation of the educational upgrading of the labour force. Hence, even under unchanged group-specific employment rates, the aggregate employment rate ought to increase. Table 2.6 makes this point more precisely by presenting a scenario of the aggregate EU employment rate in 2010 under the assumption that all group-specific employment rates remain at the level observed in 1999.⁹

⁸ The variation of the employment rate for Spain over the 1992-99 period is overstated by the Labour Force Survey since no corrections for methodological changes introduced in 1995-96 and in 1999 are made.

⁹ Changes in the age composition of the labour force have also been relevant in the improvement of labour market performance of the US over a longer period. Katz and Krueger (1999) estimate that the maturing of the baby-boom generation can account for an overall decline of the unemployment rate of 0.4 percentage points since the mid-1980s.

Table 2.6 Labour supply and employment rates in the EU by age, gender and educational attainments, 1999 and forecasts for 2010

Age/ Educational attainment	Population weights (%)				Employment rates (%)			
	1999		2010		1999		2010	
	Men	Women	Men	Women	Men	Women	Men	Women
16-24	9.1	9.1	8.9	8.9	43.4	35.6	43.5	36.7
<i>Secondary level</i>	7.4	7.1	7.2	7.2	47.7	40.5	47.7	40.5
<i>Primary level</i>	1.7	2.0	1.7	1.7	25.7	18.5	25.7	18.5
25-54	32.6	32.4	32.0	31.9	86.3	64.8	87.0	67.3
<i>Tertiary level</i>	6.8	6.3	7.8	7.3	93.0	81.9	93.0	81.9
<i>Secondary level</i>	14.8	14.3	16.3	16.5	86.7	69.4	86.7	69.4
<i>Primary level</i>	11.0	11.8	7.9	8.1	81.7	49.9	81.7	49.9
55-64	8.3	8.5	9.0	9.3	48.3	27.8	53.2	38.6
<i>Tertiary level</i>	1.6	0.8	3.5	3.5	64.3	53.4	64.3	53.4
<i>Secondary level</i>	2.8	2.2	3.5	3.5	48.5	35.2	48.5	35.2
<i>Primary level</i>	3.9	5.5	2.0	2.3	41.8	21.3	41.8	21.3
	50.0	50.0	49.9	50.1	72.0	53.1	73.8	57.5
					62.6		64.8	

Notes: Tertiary level of education: ISCED 5-7. Secondary level of education: ISCED 3-4. primary level of education: ISCED 1-2.

Sources: European Labour Force Survey (1999) and OECD.

The age composition can be forecast with relative certainty because all of the individuals in the working age bracket by 2010 have already been born.

The ongoing ageing of the population leads to the following shifts (see EUROSTAT, 1999):

The youngest group (16-24 years of age) is expected to decline 0.3 percentage points to 16.8% of total population and the weight of the oldest group (55-64 years of age) can be expected to increase, by 0.5 percentage points to 18.3%. The weight of the middle group should remain more or less constant. The shift from the youngest to the oldest

has only a very small net effect since (in Europe) the employment rate of these two groups is similar (low for both).

The distribution across educational attainment levels is more difficult to forecast. Since younger cohorts in the EU are achieving higher educational levels than previous cohorts (Dolado, Felgueroso and Jimeno, 2001) we project further increases in the population weights of the high-education groups.¹⁰

This increasing weight of the population with a higher education in the middle-age group has important effect because their employment rates are higher than the average. The male employment rate would increase by almost 2 percentage points, the female employment rate, by almost twice this amount, and the aggregate employment rate by slightly above 2 percentage points. (This would be substantially less than the 3.8 p.p. gain mentioned above for the euro-4

¹⁰ Our assumptions for these projections are based on the following facts. First, during the last decade the educational upgrading has been higher among women than among men. The table below gives the proportion of women with a university degree by age cohorts, and the weight of these cohorts in the female population aged 25-54 in 1999 (taken from Dolado, Felgueroso and Jimeno, 2001). We extrapolate these variables to 2010 assuming an increase in the younger cohort up to 27% from 23.9%, and following EUROSTAT demographic projections on population weights. This gives an increase of the population weight of women with tertiary education in total population from 20.3% to 22.5% (about 15%). As for men, we envisage a smaller increase of 10%. As a result, the aggregate employment rate goes from 62.6% to 64.8%, an increase of 0.6 percentage points less than if the population weights of men and women with tertiary education in the EU were to converge to US levels.

	Proportion of women with tertiary education	Population weight (within female population aged 25-54)
<u>1999</u>		
25-34	23.9	34.6
35-44	20.4	34.5
45-54	16.2	30.9
<u>2010</u>		
25-34	27	30.4
35-44	23.9	32.1
45-54	20.4	37.5

during the 1992-99 period, basically because a noticeable improvement in the education of the labour force in some of these countries has already taken place and because in the rest of the EU countries the weight of population with tertiary education is higher than the average and, hence, less likely to increase by much.)

This would be a useful improvement. By itself, it would imply an employment growth over a decade of about 3.3% ($=2/64$), but it would not be sufficient to achieve the targets established by the European Council (70% for the aggregate employment rate, 60% for the female employment rate and 50% for the employment rate of the population aged 55-64).

2. Labour market reforms so far

Labour market reforms have been under discussion for the last 20 years, during which time the different EU countries have undertaken extensive reform of their labour markets. A full account of recent labour market reforms in EU countries is well beyond the scope of this report. But the most authoritative, recent and detailed study (Bertola, Boeri and Nicoletti, 2000) concludes that labour market reforms have been 'marginal' and, in some cases, 'contradictory', and that there are substantial differences in the approach to labour market and product market regulation across EU countries. Hence, if this assessment were true, the reduction of unemployment observed over the last two year would be only a transitory phenomenon.

An important milestone in the process of labour market reforms in the EU is the coordination of employment policies agreed at the Luxembourg European Council of November 1997. Under the so-called Luxembourg process, countries are required to elaborate an annual National Action Plan (NAP) under guidelines that according to the Council should be the basis for employment policies in the EU. These policies put emphasis on the 'employability', 'entrepreneurship', 'adaptability' and 'equal opportunities' of the labour force. NAPs should spell out employment and regulation policies that meet these guidelines, and submit them for evaluation by the European Commission. The granting of Cohesion Funds were recently made conditional on having received a positive evaluation.

At first sight, the approach embedded in the Luxembourg process to fighting structural unemployment seems sound. Who would be against 'employability', 'entrepreneurship' and 'adaptability'? The guidelines are general enough to accommodate the different traditions of employment policies followed across EU countries. But the diagnosis of the problem is inadequate as it does not

identify the still-pervasive protection of insiders in the labour market. In practice, the results so far have been disappointing. First, the only quantitative targets for employment policies refer to the proportion of unemployed to those covered by active labour market policies (Guideline 1 regarding 'employability'), whose effectiveness in reducing unemployment is not always rigorously assessed. Secondly, the supervision of NAPs by the Commission is not effective. Thus, while some countries take the process seriously and perform a thorough analysis of their employment policies and try to find new measures to improve the functioning of the labour market, others introduce only marginal reforms and keep the ineffective measures of the past. Admittedly, it may be still too early to judge a long-term process which is being updated from time to time. In particular, the introduction of quantitative targets for employment rates agreed by the European Council (in 2000 in Lisbon and in 2001 in Stockholm) may introduce some peer pressure on the countries with less employment-friendly policies. The problem with this approach, however, is that there will be a considerable time lag between the enactment of reforms and the payoff in terms of higher employment. Governments are thus constantly tempted to adopt the measures that promise the quickest results, even if they are only transitory.

From a theoretical perspective, an analysis of the effects of labour and product market reforms on structural unemployment would require a fully-fledged model of the economy. An example of this kind of analysis is found in Blanchard and Giavazzi (2001), who assume a monopolistically competitive economy with constant returns to labour, and efficient bargaining as a rule for wage and employment determination. They show that in the long-run the equilibrium unemployment rate depends positively on workers' bargaining power and on entry barriers into the product market. Under a more complete model specifying workers' reservation wages, the equilibrium unemployment rate would increase with unemployment benefits and decrease with the efficiency of job search. These results give a hint of the type of reforms that should be analysed when looking for reductions of structural unemployment which could lead to a higher rate of potential output growth until unemployment reaches the new lower structural level.

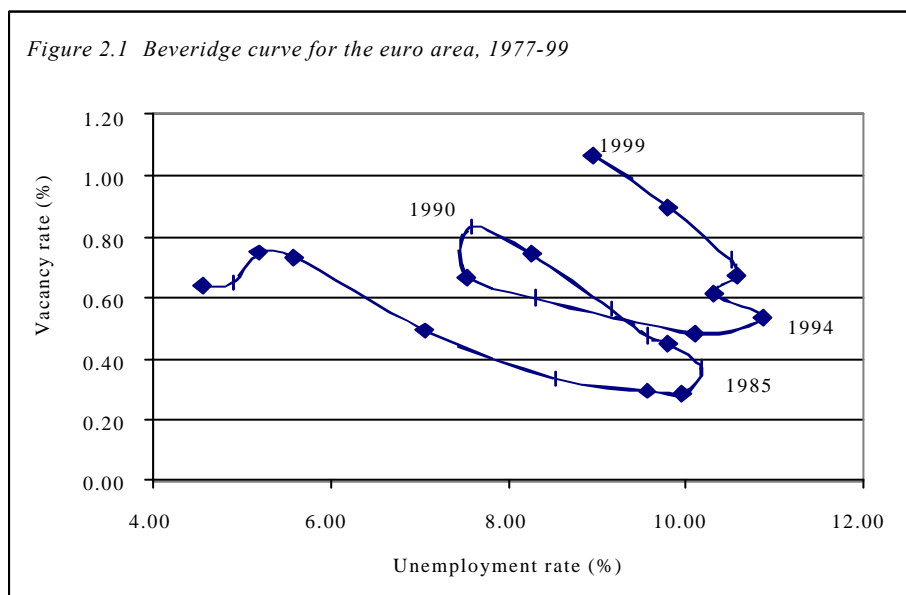
In lieu of a fully fledged assessment of labour market reform, we propose to look at three indicators that should show whether fundamental reforms have taken place:

- The relationship between unemployment and vacancy rates, i.e. the so-called Beveridge curve,

- The changing relationship between wages and unemployment (wage moderation) and
- The increasing importance of atypical labour contracts.

The Beveridge curve

Figure 2.1 shows the data for the last 20 years. It is apparent that there have been two loops, corresponding to two business cycles, but the situation at the end of each one seems worse than that of the one before. This immediately suggests two conclusions: 1) the structural characteristics of the euro-area labour market seem to have deteriorated since 1990, as shown by the fact that in 1990 both the vacancy rate and the unemployment rate were lower than in 1999, and 2) the improvement in the unemployment rate since 1995 was mostly cyclical as it was accompanied by a steep increase in the vacancy rate. This outward shift of the Beveridge curve is also consistent with some anecdotal evidence on the shortage of certain types of skilled workers, mainly those demanded in the new ICT sectors.

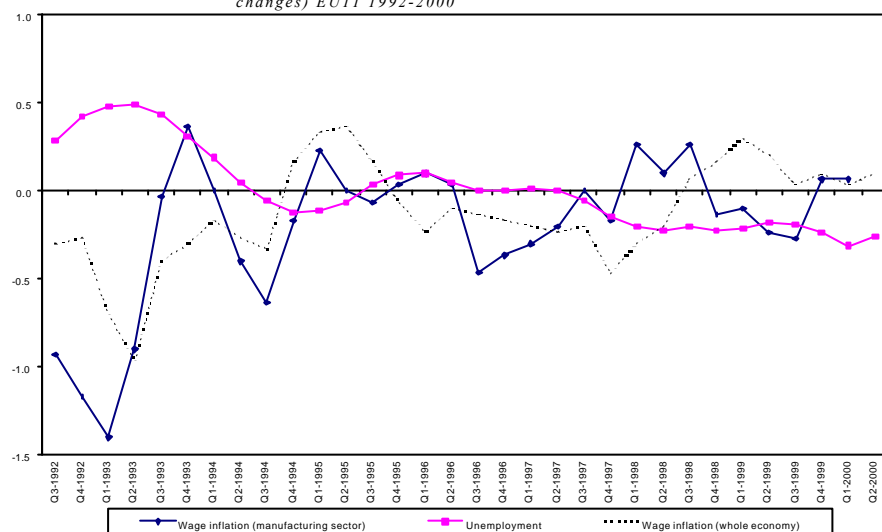


Source: Own calculations based on national data, no data available for Italy.

Wage moderation

It has been widely observed that EU countries went through a lengthy spell of wage moderation during most of the 1990s. Figure 2.2 plots the evolution of the EU average unemployment rate (in first differences and moving averages) and wage inflation (also in first differences and moving averages) during the 1992-2000 period. It shows that, despite the noticeable reduction of unemployment that has taken place since the first quarter of 1997, there are no signs of inflationary pressures in wages. It also shows that during the whole period there has been a deceleration of wage pressure across the EU.

Figure 2.2 EU average unemployment rate and wage inflation (annual changes) EU11 1992-2000



Moreover, Blanchard and Wolfers (2000) document a substantial decrease of the wage share, which they attribute to changing union attitudes. In a very detailed analysis of unionisation in Europe, Booth et al. (2001) observe a decline in union weight in wage-setting, which would be consistent with Blanchard and Wolfers' (2000) interpretation of the evolution of the wage share. Conversely, de Serres, Scarpetta and de la Maisonnette (2000) show that the decrease of the wage share up to 1998 is to a large extent due to employment composition effects, and that in some industries the wage share has indeed increased, especially in Germany. Hence, it is the change in the sectoral mix towards activities that are less unionised and account for lower

wage shares that largely explains the wage moderation observed during the 1980s and early 1990s.

But wage moderation has also continued until very recently (see Figure 2.2). Could this be a sign of a fundamental shift, or are there alternative explanations? One of the factors leading to wage moderation could be the restrictions imposed by the nominal convergence criteria established by the Maastricht Treaty in the run-up to EMU. It could be argued that unions moderated their wage demands to avoid been seen as the culprits of a possible failure to join EMU.

There are reasons to fear that this effect will not last once EMU is fully in place and the incentives built into the wage determination process change. There are reasons to expect both a higher and a lower wage pressure as a result of the common monetary policy (see, for instance, Calmfors, 1998, and Cukierman and Lippi, 1999), so that the effects of EMU on structural unemployment are controversial and depend on a whole set of parameters representing different combinations of nominal rigidity, real wage rigidity, bargaining structure and workers' bargaining power, and the European Central Bank's objective function (see Bentolila and Saint-Paul, 2000). It is thus too early to tell whether wage moderation will continue on this account.

Atypical contracts

The one area where there seems to have been permanent change in the labour market over the last decade derives from the liberalisation of 'atypical' employment contracts, such as part-time contracts in the Netherlands, and fixed-term employment contracts, first in Spain and, more recently, in France¹¹ and Italy. Among the myriad of labour market reforms introduced in EU countries over the last two decades, the most consistent line of reform is the liberalisation of atypical employment contracts in an attempt to reduce Employment Protection Legislation (EPL, henceforth) for new entrants in the labour market.

The impact of this partial liberalisation can be seen in the numbers. Since 1985, for instance, the proportion of employees under temporary contracts increased in almost all EU countries, with the exception of Greece (see Table 2.7).

¹¹ To this one might add special tax breaks and subsidies to social security contributions introduced in some countries as a measure to promote employment among some targeted disadvantaged groups in the labour market.

Table 2.7 Temporary employment in selected EU countries

	% Temporary employees				Variation 1985-98
	1985	1990	1996	1998	
Spain	15.6	29.8	33.6	32.9	17.3
Men	14.4	27.8	31.9	32.1	17.7
Women	18.4	34.2	36.7	34.4	16.0
Finland	10.5	11.5	17.3	17.7	7.2
Men	9.6		14.1	13.3	3.7
Women	11.3		20.5	21.9	10.6
Portugal	14.4	18.3	10.6	17.3	2.9
Men	13.5	16.8	10.2	16.2	2.7
Women	15.9	20.5	11.1	18.6	2.7
France	4.7	10.5	12.6	13.9	9.2
Men	4.8	9.4	11.5	13.0	8.2
Women	4.6	12.0	13.9	15.0	10.4
Greece	21.1	16.5	11.0	13.0	-8.0
Men	21.8	16.9	10.5	12.0	-9.8
Women	19.6	15.0	11.9	14.7	-4.9
Germany	10.0	10.5	11.1	12.3	2.3
Men	9.2	9.8	11.0	12.1	2.9
Women	11.1	11.6	11.2	12.5	1.4
Netherlands	7.5	7.6	12.0	12.7	5.2
Men	5.9	6.1	9.1	10.2	4.3
Women	10.8	10.2	15.9	16.1	5.3
Italy	4.8	5.2	7.5	8.6	3.8
Men	3.6	3.9	6.6	7.5	3.9
Women	7.0	7.6	8.9	10.3	3.3
UK	7.0	5.2	7.1	7.1	0.1
Men	5.7	3.7	6.0	6.0	0.3
Women	8.8	7.0	8.2	8.3	-0.5

Source: European Commission (2000).

There are wide differences in the importance of temporary contracts just among the euro-4, ranging from close to a third in Spain to less than 10% in Italy. But the overall trend is unmistakable: temporary contracts are no longer just a marginal phenomenon. Their growth actually has accounted for a large part of all employment creation. Figure 2.3 reports the decomposition of employment growth by contract duration (permanent or temporary) in the EU over the 1990-98 period, showing that the rate of growth of temporary employment in recent years was almost nine times the rate of growth of permanent employment, with temporary contracts providing one-half of all

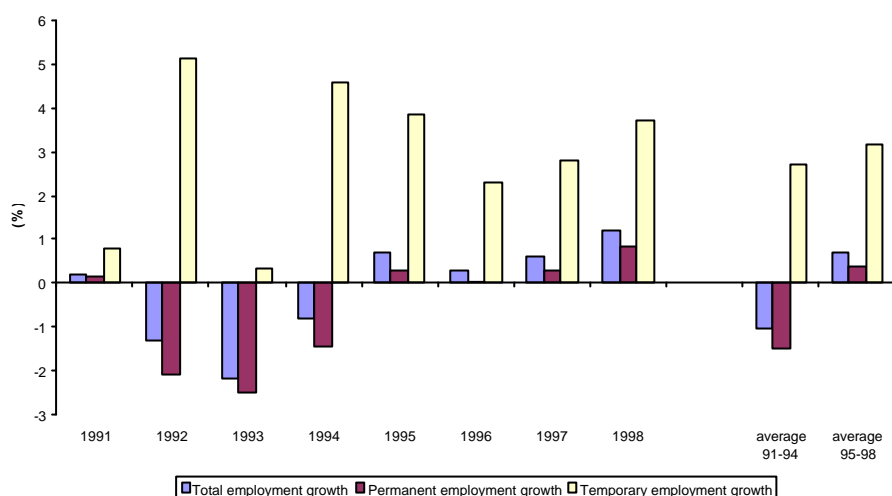
employment creation. During the recession of the early 1990s, temporary contracts actually continued to grow whereas permanent employment declined.

But would one expect a lasting reduction in unemployment from more temporary contracts? Recent theoretical work suggests that in principle, a dualisation of the labour market produced by this type of measure has ambiguous effects on unemployment (see Dolado et al., 2001, and Blanchard and Landier, 2001), as temporary employment increases both the flows from unemployment to employment and the flows from employment to unemployment. The effects of temporary employment on labour productivity are also controversial: on the one hand, temporary jobs may be ‘stepping stones’ into the labour market which enhance the professional careers of some workers (see Booth, Francesconi and Frank, 2001); on the other hand, as the employment spell shortens, there are less incentives for investment in firm-specific human capital, both on the side of employers and on the side of the workers. As for wages, workers under temporary contracts earn about 10% less than workers of similar characteristics under permanent employment contracts, and temporary employment may create a buffer leading to higher wage pressure by workers under permanent contracts insofar as the insiders in wage-setting are permanent employees (see Bentolila and Dolado, 1994, for evidence on Spain, and Blanchard and Landier, 2001, for evidence on France).

Thus, as the proportion of temporary employment contracts increases, wage growth decreases by a composition effect. Notice, however, that once the proportion of temporary employment reaches its steady-state value, the buffer effect dominates and the wage moderation brought up by atypical contracts disappears. Hence, it cannot be taken for granted that the liberalisation of atypical contracts improves the functioning of the labour market and, therefore, that a permanent reduction of structural unemployment may be expected from this reform strategy.¹² In the short-run, the weight of the flexible tier of the labour market increases as firms take advantage of the new atypical contracts entailing lower wages and lower firing costs. In the long-run, however, if the transition rates from temporary to permanent employment are low and the labour market becomes segmented, there may be negative effects on labour turnover, productivity and wages, which may hinder rather than improve the functioning of the labour market.

¹² Another issue is the political viability of alternative EPL reforms (see Saint-Paul, 2001).

Figure 2.3 Employment growth in the EU by type of employment contract



As for the recent trend towards the reduction in labour taxation by means of income tax reforms or by overall or targeted reduction in social security contributions, there are also doubts on the implications for structural unemployment. Theoretically, in a standard wage-bargaining model, labour taxation only affects real wages in the long-run, so that the reduction of non-wage labour costs translates into higher wages. Nevertheless, if minimum wages are binding, the reduction in labour taxation may enhance long-run employment and, hence, structural unemployment decreases. Empirical evidence on this matter is not totally conclusive. On the one hand, Nickell and Layard (1999), using panel data for OECD countries, find short-run effects of labour taxation on unemployment but only minor effects in the long-run, while long-run GDP growth does not seem affected. By contrast, Daveri and Tabellini (2000), using longer time series, find that the average increase of 14 percentage points in labour taxation in EU countries over the 1965-95 period, explains a rise of the unemployment rate of 4 percentage points and a reduction of GDP growth of 0.4 percentage points per annum.

3. Conclusions

All in all, our analysis suggests that the improvement in European labour markets that has taken place over the last few years has been largely cyclical in nature. If one takes a longer point of view (e.g. comparing 1990 to 1999), little fundamental improvement is apparent. The small improvement that one can observe over this longer period seems to be driven essentially by changes in the structure of the European economy in the sense that the sectors for which one would expect labour market regulations to be most binding and where collective wage agreements are most relevant, e.g. industry, are in a secular decline. This seems to lead to wage moderation, which is more apparent than real in the sense that in many sectors the wage share actually increases. The same general trend has also led to an increase in employment rates as the level of education has increased and people with more education typically have higher employment rates. Most employment legislation is designed to protect the typical factory worker, not a professional with a university degree. As the importance of the latter is increasing all the time, labour market liberalisation is thus occurring by stealth. This process is slow, however, and further improvements will be limited as it is not possible for the entire population to acquire a university degree or to work outside factories. Liberalising atypical contracts might also have had an effect at the margin, but a dual labour market is unlikely to deliver superior results in the long run.

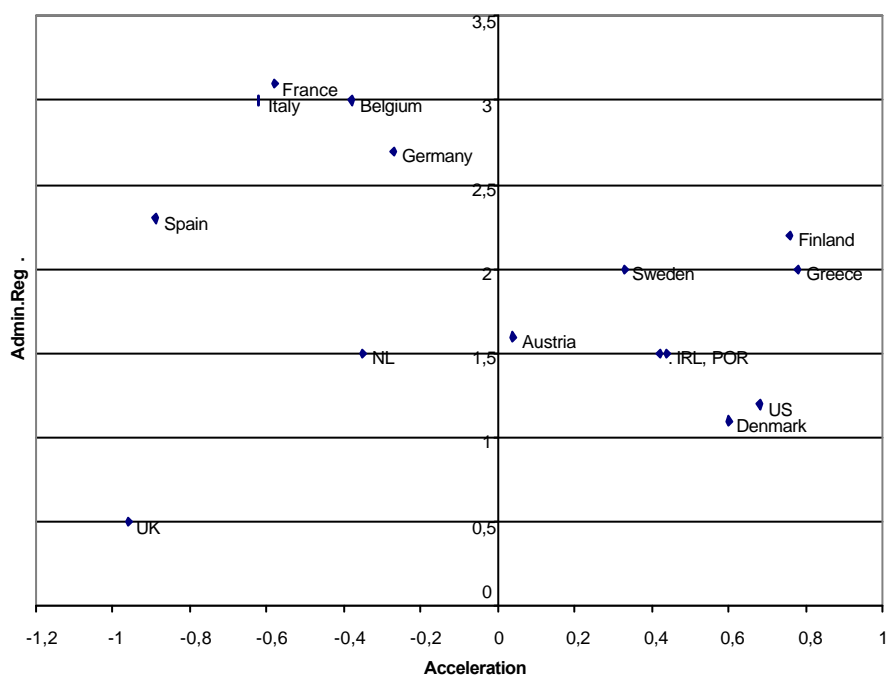
The fact that there has been little structural reform does matter. It not only hampers the return to full employment, but there is also by now little dispute that excessive regulation, whether on goods or labour markets, hampers growth. The stark difference between the US and the EU documented above suggests, however, a slightly different question, namely whether excessive regulation can also be seen as the reason why most EU countries have not experienced the acceleration of productivity growth as in the US. One would expect administrative barriers to change to become even more important when technological change quickens. This is indeed what seems to have happened. Figure 2.4 shows the relationship between administrative regulation and the acceleration of growth during the 1990s (compared to the 1980s). There is a clear negative association between the index of administrative burden used here and the acceleration in growth.¹³

¹³ The UK seems to represent a special case, with a combination of the lowest administrative burden and the largest deceleration. The explanation might simply be that the UK introduced its reforms much earlier, so that the productivity boom came

The reason for the relationship between the tightness of administrative burden and the acceleration of growth is clear: at a time of rapid technological change it becomes even more important for enterprises to be free to reorganise themselves for the introduction of productivity enhancing innovation.

We do not wish to suggest that Europe is condemned to remain forever technologically and economically behind the US, but our analysis suggests that the growth prospects of the largest part of the euro area have not improved structurally in recent years. Chapter 3 examines the question of how monetary policy should be conducted in an environment of uncertain growth prospects.

Figure 2.4. Administrative Regulation and Acceleration in 1990s



Note: AR is a summary indicator of administrative regulation, see Nicoletti, Scarpetta and Boylaud (1999).

earlier, with the deceleration during the second half of the 1990s representing merely a return to normality.

CHAPTER III

AN ASSESSMENT OF ECB POLICY

This chapter turns to an analysis of the monetary policy stance. It starts with a brief review of the policy decisions¹ taken since CEPS published the previous Macroeconomic Policy Group report in May 2000. Section 2 then uses several indicators to assess whether the current policy stance can be characterised as loose or tight. The third section evaluates the strategy followed by the ECB and a final section offers some conclusions.

1. Monetary policy decisions

8 June 2000

‘By its decision to raise ECB interest rates (by 50 basis points) the Governing Council acted in a forward-looking manner. [...] In the months prior to the move, the upside risks to price stability in the medium term had clearly been increasing. This assessment was supported by the information from both pillars of the Eurosystem’s monetary policy strategy.’

In the second pillar, the euro’s weakness played a significant role despite the appreciation that took place several days before. ‘Given the extent and duration of the earlier depreciation, further upward pressure on consumer prices is to be expected.’ The appreciation of the euro led the markets to expect only a 25 basis point (bp) increase.

The 50bp move, however, also had a technical motivation: ‘The Governing Council also decided at its meeting on 8 June 2000 that, starting from the operation to be settled on 28 June 2000, the main refinancing operations of the Eurosystem would be conducted as variable rate tenders, applying the multiple rate auction procedure’. The move to ‘variable rate tenders in the main refinancing operations, is not intended to be a change in the monetary policy stance of the Eurosystem’. And ‘for the purpose of signalling the monetary policy stance, the minimum bid rate is designed to play the role performed, until now, by the rate in fixed rate tenders’.

To make this transition a smooth one from a technical point of view and to ease the understanding of the signalling role of the minimum bid rate, it was important to avoid creating expectations of further imminent increases in policy rates. Otherwise, such expectations would have led to a significant

¹ The material quoted in this section has been taken from the ECB website (www.ecb.org).

widening of the spread between the minimum assignment rate (and the overnight rate) and the minimum bid rate. A 50bp increase served this purpose too.

31 August 2000

‘At its meeting on 31 August 2000, the Governing Council decided to raise the minimum bid rate on the main refinancing operations of the Eurosystem by 25 basis points to 4.50%.’

Not surprisingly, ‘the decision taken on 31 August 2000 reflected concerns of upward risk to price stability, as evidenced by analyses based on both pillars of the monetary policy strategy of the ECB’.

In the assessment, once again a key role was played by the fall of the euro. ‘The overall positive outlook for the euro area is not reflected in the external value of the euro, which in nominal effective terms declined by 4.2% between the beginning of August and mid-September 2000 [and which] contrasts more and more with economic fundamentals.’ Indeed, ‘the recent decline in the exchange rate of the euro entails upward pressures on prices that are a cause for concern’.

5 October 2000

‘At its meeting on 5 October 2000, the Governing Council of the ECB decided to increase the minimum bid rate on the main refinancing operations of the Eurosystem by 25 basis points to 4.75%.’

Once again, upward risks to price stability emerge from the analysis of current and expected economic conditions, but the euro gets mentioned even before the two pillars. ‘The decision taken on 5 October 2000 aimed at ensuring that the upward pressures on consumer prices, which currently stem mainly from oil prices and the exchange rate of the euro, do not translate into more permanent inflationary tendencies.’

Needless to say, once again, ‘the decision to increase the ECB interest rates was based on analyses under both pillars on the monetary policy strategy of the ECB’. The timing was a bit awkward (the shortest interval of time in the life of the ECB) but it was in clear relation to the first official intervention in the foreign exchange market in the life of the ECB.

‘Recent movements in the exchange rate of the euro had given rise to concerns, which the ECB shared with the central bank governors and ministers of finance of all the G7 countries. In order to address these concerns, on 22 September, at the ECB’s initiative, the monetary authorities of the United States, Japan, the United Kingdom and Canada joined the ECB in a concerted intervention in the foreign exchange markets.’

This clearly shows that the ECB does not subscribe to the view, often put forward by market commentators and operators, that cutting (or failing to raise) interest rates would strengthen rather than weaken the euro, as growth prospects would be enhanced by an easier monetary stance.

14 December 2000

No monetary policy action was taken at the meeting on 14 December, but the Governing Council of the ECB confirmed the existing reference value for monetary growth of 4.5% for broad aggregate M3. This fact was attributed a significant signalling value by market participants.

In the press conference following the meeting, it was argued that there is still no decisive evidence that measurable and lasting increases in productivity growth warrant an upward revision in the assumption for trend potential growth. Although such a bleak assessment is controversial, we see great merit in providing unambiguous guidance to markets on the assessment the ECB entertains about possible changes in potential output spurred by the 'new economy'. As argued in Appendix 1 below, clear communication with the market on the part of the central bank is the best course of action to avoid loss in output or high inflation resulting from the uncertainty on the extent and persistence of changes in productivity growth.

On the other hand, an increase in the reference value could have been justified on the basis of a reassessment of the trend in the velocity of circulation of M3. Given market expectations, a change in the reference value to 5% would have been interpreted as the signal that the tightening cycle had reached its peak. The ECB, however, deliberately decided not to send this message, as the situation on the price front was still worrying.

11 April 2001

No change in policy rates was decided at the meeting, wrongfooting the vast majority of market participants and commentators who had expected the ECB to follow in the wake of the Fed and other central banks around the globe and start cutting rates. Indeed, following the announcement by the ECB, the price of short-term interest rate futures recorded a change so large that it can be compared in size only to the one following the hike by 50bp on 8 June 2000.

10 May 2001

The ECB cut its official rates by 25bp. This decision came as a total surprise to financial markets given the statements that had led up to the 'non-decision' described above, which had generated the impression that the ECB would wait and see, i.e. would wait until inflationary pressures had visibly abated before cutting rates. The only new information divulged after the

decision was that the money growth figure (4.8%) over the last month had been close to the reference value (4.5%). But the real surprise came in the following part of the introductory statement:

‘In addition, as already noted on several occasions, there have been indications that the monetary growth figures are distorted upwards by non-euro area residents’ purchases of negotiable paper included in M3. This has now been confirmed by clear evidence, and the magnitudes involved are significant. As regards holdings of money market fund units/shares by non-euro area residents, on which we now have solid statistical evidence, the distortion has become sizeable over recent months and currently amounts to around half a percentage point.’

Not surprisingly, this was badly received by financial markets because it meant that the goal posts had suddenly shifted. Moreover, it implied that the ECB had acted on information that was not available to others. Furthermore, only part² of the distortion was identified, so that further surprises could not be excluded. Although the statement of the ECB in essence acknowledged that the money growth figures used so far had been misleading, the ECB reiterated later on its confidence in the first pillar:

‘As these factors can be broadly identified, the information content under the first pillar is ensured.’

As usual the two pillars broadly agree, but there is a slight nuance. According to the introductory statement:

‘The information under the first pillar indicates that *price stability can be maintained* [...]

The information under the second pillar indicates that *upward pressure on prices can be contained*.’ (our emphases)

As argued below, the case for cutting policy was not overwhelming: the euro remains persistently weak and the upward trend in core inflation continues despite the slowdown in economic activity, showing that the past depreciation of the euro is passing through to consumer prices, jeopardising the maintenance of wage moderation. In any event, the frequent large differences between market expectations and the actions by the ECB definitely point to the persistence of a communication problem that is neither helping the ECB to build its credibility nor leading to monetary policy decisions that have the desired effects on the economy in a smooth and timely fashion.

² The money market fund units/shares are only part of the negotiable instruments.

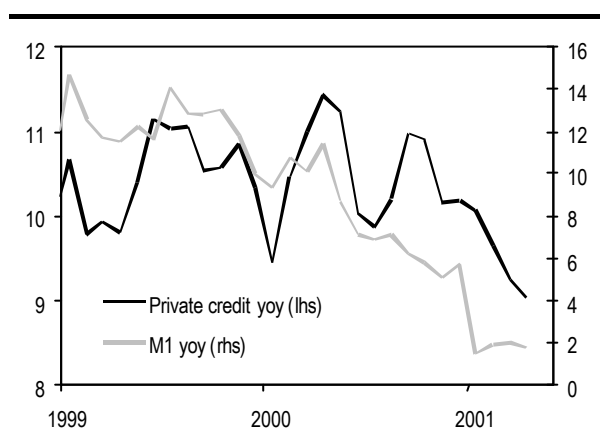
2. Was the monetary stance too loose or too tight?

The assessment of the monetary stance starts from two well established indicators of the monetary stance: money supply expansion and the short-term real interest rate. Since the euro has fluctuated so much in the period under review, however, another important indicator has to be looked at: the MCI (monetary condition index).

Money growth

For the initial part of the period under review (roughly until the end of 2000), monetary growth has been very fast as signalled by a whole battery of monetary indicators. The pace of expansion of both M1 and credit to the private sector has been systematically above that of the nominal product and the latter even for a sustained period in the 2-digit area. Even though slower, M3 growth has been well above the reference value set by the ECB.³ More significantly, the rate of M3 expansion has been well in excess of the value compatible with the price stability and the long-run, stable money demand function that underpins the usefulness of M3 as an indicator for monetary policy.⁴

Figure 3.1 M1 and private credit growth

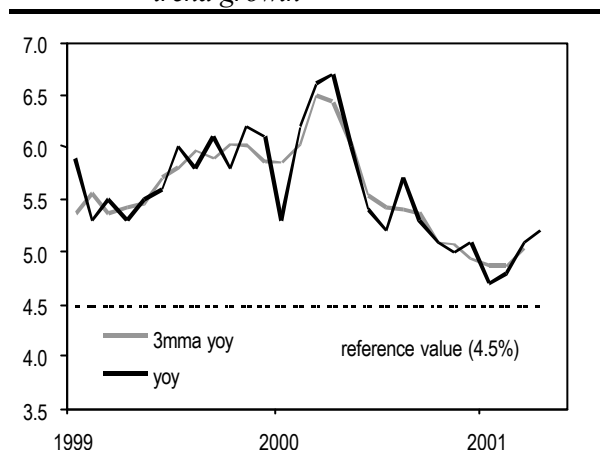


Source: ECB, Deutsche Bank Global Markets Research.

³ The ECB has made statistical corrections to its reported M3 growth rates, as we outline in greater detail below and in Appendix 2. The most recent correction was made in May 2001, and back series are not yet published. The ECB is to be thanked for statistical refinements, but all results using M3 growth data must now be taken with a (large) pinch of salt.

⁴ The so-called M3 money gap indicator has been systematically positive until mid-2000 (see Monticelli, 2000).

Figure 3.2 M3 growth: yoy rate and ECB trend growth

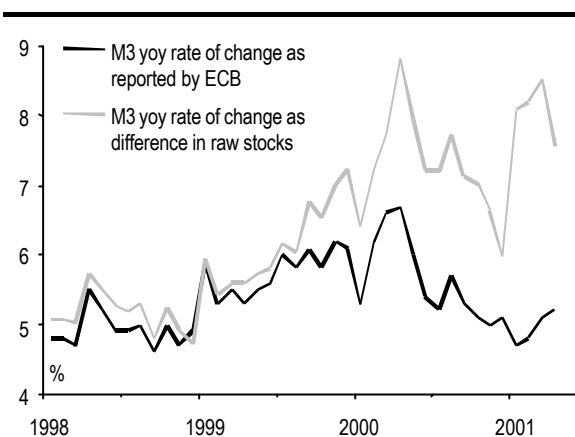


Source: ECB, Deutsche Bank Global Markets Research.

It has taken some time for money growth to slow down. This may be taken as a clue that the correction of the easy monetary stance was too slow, or started too late and could in turn have been a cause for the weakness of the euro. At the same time it is a reflection of the fact that the progressive tightening of monetary conditions stemming from the interest rate hikes was in part offset by movements in the exchange rate, as the analysis of the monetary conditions index below shows. All in all, monetary developments point to a stance that, after a prolonged period when it was definitely loose, has slowly moved back to a level that can generally be seen as neutral but can hardly be regarded as restrictive.

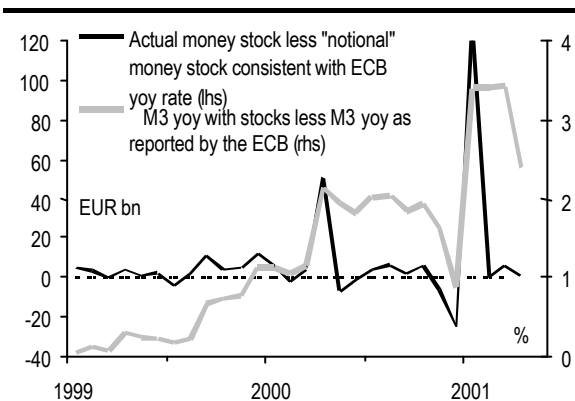
The data used so far have been based on the series provided by the ECB until May of this year (the only ones for which data are available for several years). But even these data suffer from the problem that there are two sources for the growth rates of monetary aggregates: Firstly, these growth rates can be calculated directly from the data on levels. Secondly, the ECB also directly reports growth rates for M3 that are different, because the ECB corrects the raw data for the effects of 'non-transaction-related factors', i.e. changes in stocks that are due to reclassifications and other statistical factors as well as to re-valuations (the latter mostly coming from the weakening of the euro). The graph above shows that recently the time profile of these two series has been completely different: the growth rates one can calculate by just taking the difference in raw M3 data (also published by the ECB) have been much higher (and more volatile) than the 'adjusted' growth rates which the ECB compares to its reference value of 4.5%.

Figure 3.3 Change in M3: raw vs ECB adjusted data (billions of euro)



Source: ECB, Deutsche Bank Global Markets Research.

Figure 3.4 Difference 'more conspicuous' in yoy rates than in billions of euro



Source: ECB, Deutsche Bank Global Markets Research.

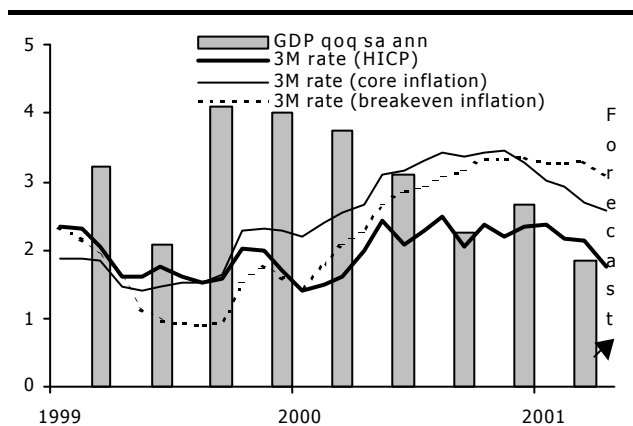
Moreover, as mentioned above, the ECB published new data for M3 following its May 10th decision, adjusted for foreign holdings of certain money market instruments. Since only limited historical data were made available for this corrected series, it is not possible to comment at this point on how one would judge the evolution of monetary aggregates (if one still had any belief in them) over the longer run. The only point suggested by this new data is that the inflationary potential of money growth as measured has

been overstated due to the holdings of foreigners. One can assume that these holdings constitute a form of international investment, and thus do not contain a potential demand pressure for goods and services from the euro area.

The short-term real interest rate

The assessment about the monetary stance on the basis of the real interest rate varies according to the inflation rate used for the deflation. From a theoretical point of view, the appropriate indicator is the expected rate of inflation, which is unobservable. Typically, current inflation is used as a proxy. In the period under review, however, the inflation rate has been subject to a major shock given the hike in oil prices (+330% from trough to peak of the oil price in USD), which was compounded by the weakness of the euro (+414% from trough to peak of the oil price in EUR). For this reason, the validity of the approximation of expected inflation by current inflation becomes more questionable and it is thus important to distinguish between core inflation and headline inflation. As an additional proxy for inflation expectations, we also use the break-even rate of inflation from the index-linked OAT.

Figure 3.5 Real rates and activity



Source: Eurostat, ECB, Deutsche Bank Global Markets Research.

The analysis suggests that the tightening has been appropriate and capable of containing inflationary pressures if the core measure is adopted. Insufficient tightening instead would be the result on the basis of headline inflation, with the real rate remaining below actual and (presumably) potential output. The OAT break-even measure of inflation is closer to core inflation than to

headline inflation suggesting that financial markets have taken the shock to headline inflation as temporary, subscribing to the credibility of the ECB in maintaining price stability. Moreover, despite the weak euro and high oil prices, wage moderation (documented in Chapter II) is a further indication, arising from a different set of agents, that the ECB is perceived to be credible in delivering price stability over the medium term. These arguments support the conclusion that the pace and extent of ECB tightening was broadly appropriate to keep inflationary expectations in check while correcting the monetary stance towards a more or less neutral level – i.e. a level of the short-term real interest rate close to the potential pace of GDP expansion.

Monetary conditions index

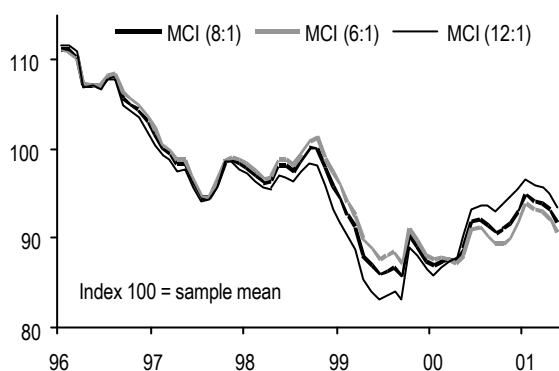
As a tool of monetary analysis, the monetary conditions index (MCI) is typically used for small (or not so small, such as Canada) open economies, whereas the euro area as a whole is a relatively closed economy with a degree of openness of 16-17% of GDP. At this juncture, however, the reference to an MCI seems particularly useful for the euro area too. The huge change in the external value of the euro has led to a massive shift in the monetary stance, even though the exchange rate is given little weight as opposed to the interest rate in its computation. Figure 3.6 below shows the MCI with different weightings (interest rate to exchange rate).

Inspection of the developments in the MCI reveals two key findings:

1. *Monetary conditions have eased significantly after the inception of EMU, mostly as a result of the depreciation of the euro.* Indeed, developments in aggregate demand have confirmed the importance of the external stimulus to growth, powerfully supported by the improvement in price competitiveness. The depreciation of the exchange rate since 1999 contributed almost a full percentage point to 2000 GDP growth.
2. *The continuing depreciation of the euro has offset a large part of the tightening of monetary conditions stemming from the interest rate hikes since November 1999.*

These are important elements for the assessment of the outlook for monetary policy. One has to be careful in interpreting the influence of the exchange rate on monetary conditions. If one believes that the depreciation of the euro reflects only a fall in the equilibrium exchange rate of the euro, the depreciation since the inception of EMU could be viewed as having not really loosened monetary conditions.

Figure 3.6 Monetary conditions indicators for the euro area



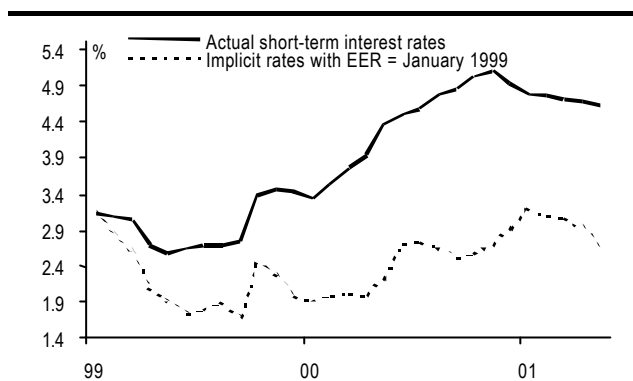
Source: ECB, Deutsche Bank Global Markets Research.

Conversely, if one believes that the euro has undershot its equilibrium value, in other words, if the real exchange rate of the euro is currently below its equilibrium value, the real exchange rate is bound to recover sooner or later. This can happen through an appreciation of the nominal exchange rate and this is the way that would be most beneficial for the euro-area economy. Alternatively, the appreciation in real terms can take place through inflation a risk that implies that the persistent weakness of the euro is an important source of inflationary pressures.

Our position is that the upward shift in trend productivity in the US, which has not yet occurred in the euro area, justifies an appreciation of the dollar (see Chapter II). Nevertheless, the present exchange rate of the euro seems considerably below any reasonable estimates of the longer-run equilibrium (see Lorenzen and Thygesen, 2001).

Although developments in the MCI itself are quite striking, the conclusions from the analysis can be illustrated in other, even clearer ways. One is by comparing actual developments in the short-term interest rate with those of an 'implicit' interest rate. The latter can be defined as the interest rate that would have produced the actual monetary stance (i.e. have generated the same movements in the MCI) if the exchange rate of the euro had remained constant at its January 1999 value.

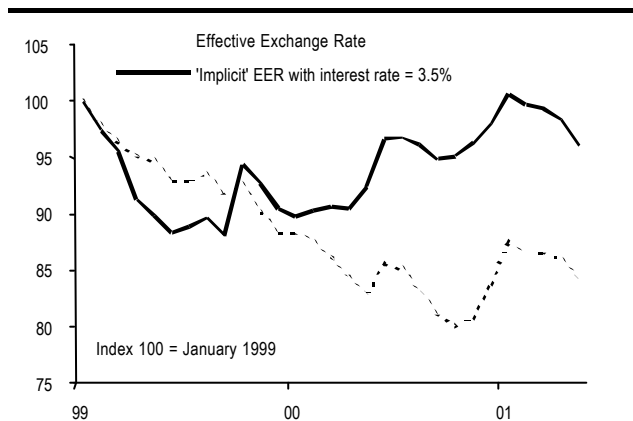
Figure 3.7 Actual and implicit interest rates



Source: ECB, Deutsche Bank Global Markets Research.

Figure 3.7 shows that if the euro had remained constant at the average level of January 1999, the same monetary conditions that actually prevailed would have required short-term interest rates at below 3% for the past two years.

Figure 3.8 Actual and implicit exchange rates



Source: ECB, Deutsche Bank Global Markets Research.

Figure 3.8 illustrates the result in another way. All the variation in the MCI is attributed to the other variable, by computing an ‘implicit’ exchange rate. The latter is defined as the value of the exchange rate that would have led to the same variations in the MCI which actually took place if the short-term interest rate had remained constant at 3%, the level it had in January 1999.

So far the discussion of the MCI has focused on the changes that have taken place since the start of the ECB without passing any explicit judgement on the appropriateness of the level itself of the monetary conditions. Indeed the analysis of a neutral level for the MCI must rest on the assessment of the equilibrium level of the exchange rate – a matter that is tricky even from a theoretical point of view, given that the long-term equilibrium conditions for the external sector (trade and capital flows) are hard to spell out, particularly when asset accumulation is also taken into account. Secondly, it has to be recalled that even a neutral level need not be appropriate. In fact, the neutral level can result not only from equilibrium values of the two components but also by two compensating disequilibria (e.g. with a short-term interest rate below neutrality and an exchange rate above the equilibrium value). These theoretical difficulties are further compounded by the problems encountered in the empirical estimation of the real exchange rate.

These arguments suggest extreme caution in drawing judgements on monetary policy from the mere *level* of the MCI. However, they do not impair the importance of the conclusions reached on the basis of the assessment of *changes* in MCI itself.

Indeed, the assessment that

- *monetary conditions have eased significantly after the inception of EMU, mostly as a result of the depreciation of the euro, and that*
- *the continuing depreciation of the euro has offset a large part of the tightening of monetary conditions stemming from the interest rate hikes since November 1999,*

has by itself an important bearing on the outlook for monetary policy, even abstracting from the level of the MCI. The crucial proviso, however, is that this assessment is robust with respect to a convincingly wide range of alternatives in the definition of the MCI. After briefly recalling the methodological issues in the definition of a monetary condition index, Appendix 3 tests the robustness of these two conclusions by showing that they hold for a broad range of different definitions of the MCI.

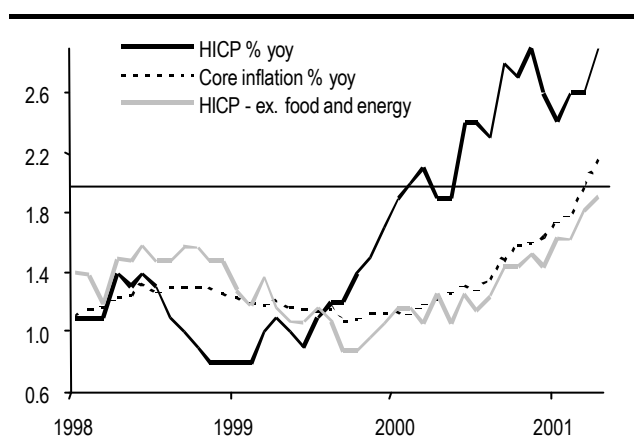
Conclusion from the assessment of the monetary stance

The analysis of this section does not point to large imbalances on the monetary front. The very loose stance prevailing in mid-1999 was then corrected with a succession of increases in policy rates that was quite rapid by historical standards in continental Europe. Despite that, the correction took quite a relatively long time both because the rise in short-term interest rates was in part offset by the increase in inflation in the wake of the oil price hike, and the exchange rate continued to depreciate. Indeed an analysis of a MCI for the euro area shows that at the peak of the tightening cycle

monetary conditions were more or less the same as prevailed in December 1999, just after the rise in policy interest rates that initiated the tightening cycle.

Several voices (from editorials in the *Financial Times* to high-ranking officials from the IMF) have advocated interest rate cuts by the ECB on the two-fold premise that growth in the euro area is slowing down and that the ECB has to do its share in fighting the global slowdown. The conclusions of our analysis do not lend support to these arguments, unless growth prospects were to deteriorate much further: the current monetary stance can hardly be considered restrictive and the weakness of the euro continues to pose a threat to price stability. Further cutting of rates in an environment where the euro remains so weak could jeopardise the entire process of building an anti-inflationary credibility.

Figure 3.9 Inflation bouncing back



Source: Eurostat, Deutsche Bank Global Markets Research.

As Figure 3.9 shows, the most recent developments in inflation have clouded the outlook. The extent of the deterioration is difficult to assess because of the one-off effects related to the animal diseases that involve items such as milk and leather, which are included in the basket of goods measuring core inflation. On the other hand, the recent increase in inflation in the euro area in large part follows from increases that are common across countries and generalised across items of the CPI basket. This suggests that the rise in core inflation, which has accompanied the halt in the decline of headline inflation, stems from knock-on effects of past depreciation of the exchange rate. The further depreciation of the euro that followed the May rate cut by the ECB thus argues for vigilance against continuing inflationary pressures.

At the current juncture, the case for further cutting of policy rates is thus not overwhelming, unless the euro appreciates, curbing inflationary pressures and leading to a restriction in monetary conditions, or unless growth prospects were to deteriorate further.

3. An assessment of the monetary policy strategy

Discussions about the strategy of the ECB have tended to follow a curious pattern: On the one hand, the ECB has been criticised from many quarters for both its communications strategy and the framework followed for monetary policy decision-making. On the other hand, the virtually unanimous critical position on the strategy has not been accompanied by strong complaints regarding actual monetary policy decisions. Does this mean that an analysis of the strategy is a moot point? The very presence of this section in this report testifies that we do not share this view and that we regard the strategy as an area of concern. First, improving communications with the public can enhance at one and the same time the credibility of the ECB and the effectiveness of its monetary policy actions. Secondly, an ineffective communication policy may have negative implications for the external value of the euro.

The ECB has frequently been criticised for its inept communications regarding the exchange rate, but, as mentioned above, the ECB has been quite clear on one important longer-run issue, namely that it does not believe that the potential growth rate of the euro area has increased recently. This issue provides a good illustration of the importance of clear communication. Appendix 1 uses a standard economic model to explore the consequences of misunderstandings and/or disagreements on this point between the central bank and the public. The main result that emerges from the comparison of various cases is that it does not matter so much whether the ECB is right or wrong in assuming that there is no 'new economy' in Europe. Output will not be affected as long as the private sector knows exactly what the central bank thinks. The intuition behind this result is that wage-setters will take the position of the ECB into account when setting wages. They will thus realise that higher wages would lead the ECB to react. Moderate wage settlements should thus result (as long as the position of the ECB is clear and credible). Should productivity increase by more than assumed by the ECB, inflation would be lower but output could still expand. Viewed from this perspective, the ECB has been right in taking an unambiguous position on the question whether the potential growth rate has increased.⁵

⁵ We happen to agree with this position, but the key point here is that the ECB had to take a clear stance.

The remainder of this section concentrates on the areas where the ECB has done less well. The last report of the CEPS Macroeconomic Policy Group (see Gros et al., 2000) put forward specific recommendations. The assessment is thus best carried out with reference to those. We start with the role of money, because in this area the ECB has itself put its approach in doubt. We then turn to a general assessment of transparency.

3.1 The role of money in the strategy

The utility of the first pillar is very hard to understand in practice. In theory the two-pillar strategy serves the purpose of giving resilience to monetary policy decisions in an environment where uncertainty on the structure of the economy is particularly high. In principle this is a commendable objective but it forces one to acknowledge that at times the two pillars give different indications and, for reasons that are clearly explained each time, one pillar is deemed to be more reliable than the other. But in reality, every single monetary policy decision has been justified invoking the same indication from both pillars even when this patently was not the case, e.g. the rate cut in April 1999, or the more recent one.

This tendency to attribute the same indication to both pillars undermines the credibility of the two-pillar strategy. What is the use of the second (or the first) pillar, if it always provides (or is interpreted by the ECB as providing) the same indications as the other?

But recent developments, namely the statistical adjustments already mentioned above, have added an additional and compelling reason to suppress the monetary pillar.

Two 'statistical' adjustments are particularly relevant: There is a difference between the 'adjusted' growth rates for money used by the ECB to justify its decision and the 'raw' data, i.e. the growth rates one computes directly from actual stocks. As shown above, this difference has been so large that if the assessment were to be based on the latter, it would completely change the picture.

Such a large difference requires careful explanation. In particular it invites the following question: Is the adjustment justified on theoretical and empirical grounds so that the indicator properties of money growth are improved rather than deteriorated by the correction? For changes of a statistical nature, the prior belief is obviously in favour of the adjustment. For changes of an economic nature, the theoretical argument in favour of netting out re-valuations is weak. Ultimately it is the market value of assets included in the definition of money that determines the spending power they grant to the holder. If this is not really the case (as it must be argued to exclude changes in the valuation), then the question arises of why were the assets in question included in the *definition* of M3 in the first place. From an

empirical point of view, the size of the difference in growth rates stemming from the adjustment is so large as to warrant empirical investigation to support the hypothesis that the desirable properties of the aggregate are not lost. So far no research on this front has been presented by the ECB.

Very recently, the ECB applied a further statistical refinement to the M3 growth rate. As of May 2001, money market fund shares/units held by non-euro area residents are excluded from reported M3 growth figures since (see above and Appendix 2). Since M3 growth should measure monetary developments that would have an impact on demand in the euro area, this refinement is a priori sensible. However, the problem is far from being solved. The refinement only eliminates a part of non-euro area money holdings from the statistics. With the euro increasingly gaining weight as an international currency, non-euro area money holdings should grow, and not only those particular forms of money holdings that have now been removed from the M3 growth statistic.

While the ECB has repeatedly mentioned this statistical problem, it failed to suggest the extent of its possible implications so that the size of the estimated correction in money growth rates took market participants and observers by surprise. This bears on the importance attributed to M3 growth in the context of the first pillar of the ECB's monetary policy strategy. The ECB is careful in hedging its bets on M3, even within the first pillar, by noting that several other monetary variables must also be looked at. Nonetheless, M3 is the indicator that by far attracts the most attention. Yet, the size of the adjustment is so large as to allow almost any interpretation of this indicator, depending on the data one uses (raw, adjusted growth rates, with or without foreign holdings). The statistical rationale for the adjustments is not explained in sufficient detail on a systematic and timely basis. Nor has empirical research shown that the desirable properties of M3 survived the adjustment.

The latest adjustments render the problem even more acute in that, by its own admission, the ECB cannot provide detailed figures for M3 without foreign holdings, until the end of the year. The first pillar had always been defended on grounds that it was easy to calculate and hence transparent. The first pillar no longer meets this criterion, at least it won't until the end of the year. In the long run, the various statistical corrections may well improve the accuracy of the series, but they defy the prime purpose of having the first pillar, namely its purported *transparency*.

One must undoubtedly be sympathetic with the difficulties faced by the ECB in producing statistics. Yet, it is difficult to extend the sympathy to the prominent role of M3 in the monetary policy strategy, when there is such a large difference between the straightforward 'raw' rate of M3 money growth and the one that provides a key input to the monetary policy decision-making

process. How should one at this point evaluate previous pronouncements of the ECB, justifying decisions in terms of the first pillar, when the whole time series now looks quite different?

3.2 Transparency and communications

The ECB claims to be making a big effort to be as transparent as possible, but it does not seem to be succeeding. There exists a general perception among financial markets and academic observers that the ECB remains opaque.⁶ We find that the ECB does indeed try to be as open as possible, since on formal criteria it is transparent. Nevertheless, there is ample, although mostly anecdotal, evidence that market participants do not understand the ECB.

Formal transparency

The ECB's claim that it has made a large effort to improve transparency rests on the fact that it now publishes staff forecasts, holds frequent press conferences, etc. But even going beyond the number of publications, one could argue that the ECB is transparent. Bini-Smaghi and Gros (2001) present a novel indicator of transparency, which is based on the different channels through which central banks interact with public opinion, market participants and the other institutions in society. They consider 15 individual criteria of central bank transparency, divided into four groups (see Appendix 4 for details):

- the precision of the objective,
- the strategy to reach it,
- the data/forecasts published and
- the communication strategy.

Within each group several individual indicators were chosen. For example, the first criterion in the first grouping is simply what the objective of the central bank is supposed to be. Giving a central bank one clear task facilitates accountability. A score of 2 was thus given when maintaining price stability was clearly the main task of the central bank, a score of 1 was assigned when the primacy of price stability was not clear, and a score of zero was assigned when the central bank had no clearly defined responsibility. A similar procedure was used in the other areas as well. The table in Appendix 4 contains a complete list of the elements used and the results for the ECB and some other large central banks. The individual scores were then totalled to arrive at an overall score.

⁶ For recent examples, see Barbier (2001) and Bevan (2001).

The surprising result is that these formal criteria suggest that the ECB is more transparent than the US Federal Reserve.

Table 3.1 A summary indicator of (formal) transparency for central banks

	Total score*
Eurosystem	19
Federal Reserve	14
Bank of Japan	10
Bank of Canada	15
Bank of England	20
Bundesbank	13

Source: Bini-Smaghi and Gros (2001).

* Without scores regarding minutes and publication of votes.

This table thus suggests that the ECB (or rather the Eurosystem) should (formally) be more transparent than the other major central banks, with the exception of the Bank of England. This seems to vindicate the position taken by Issing (1999) that the ECB is as transparent as the institution can possibly be.

Perceived transparency

Despite this high formal rating in transparency, the ECB does not seem to be understood by the markets. This was suggested in the last report of the CEPS Macroeconomic Policy Group (Gros et al., 2000) which presented the results of a survey conducted among financial market participants in early 2000. The respondents were asked to rate on a scale of 1 to 5 how well they understood the reasoning behind monetary policy decisions at four central banks (a higher grade indicates a better understanding). The comparison included the Bundesbank, which can be viewed in many ways as the ECB's predecessor. The sample was not scientific (only 113 responses were received), but it represented almost all business areas and regions. Hence, despite its size, the survey may still have broadly reflected views held by a majority of financial market participants. The ECB was rated at the bottom, lower than the Federal Reserve, the Bank of England and the Bundesbank (pre-1999). This result might have been due to the limited track record of the ECB at the time, but a recent poll by Reuters⁷ arrived at a similar conclusion.

⁷ Reuters, 29 May 2001; written by Pratima Desai, London.

The Reuters poll also cannot be considered as being scientifically representative, due to a low number of respondents, but it confirms the result reported by the CEPS MPG. The ECB received the lowest mark for both transparency and presentation among the five central banks ranked by the respondents. The grades given the ECB (3.8 in transparency and 3.4 in presentation) are considerably lower than those for the Federal Reserve (7.3 and 7.9, respectively) or the Bank of England (7.8 and 8.0 – the highest mark in these two categories).⁸

All in all, it thus appears that the ECB has at its disposal all the instruments necessary to function in a transparent manner, but it does not use them properly. We comment briefly below on three areas already touched upon in our last report:

Publications of the forecasts

For the first time in its brief existence, the ECB published its forecasts ('staff projections') in the December 2000 issue of the *Monthly Bulletin*. The goodwill generated in doing so is certainly to be commended as well as the effort to create greater transparency and to explain the rationale behind monetary policy decisions. Nevertheless, several shortcomings must be noted:

- The publication process is too long, leading to the publication of 'old' forecasts that do not reflect the changes taking place in the exogenous variables.
- The forecast range for the key forecast variables is too wide thereby producing forecasts with very little information value, particularly in the absence of an explicit assessment of the balance of risks around the centre value.
- There is some ambiguity on the role, if any, that forecasts play in monetary policy decision-making.

This last point is crucial. The Governing Council of the ECB has been so careful to distance itself from these 'staff projections' that it is impossible for outsiders to understand what influence, if any, the numbers published by the ECB actually have on its policy decisions.

⁸ It is interesting to note that the ECB is relatively much better placed in terms of perceived monetary policy effectiveness. Here it still occupies second place from the bottom (just before the Bank of Japan), but the difference with respect to the other central banks is relatively small (e.g. 6.2 versus 7.3 for the Federal Reserve). This also confirms the dichotomy noted above: few maintain that the ECB has made serious policy errors, but most agree that it is not transparent and does not present its policy in a convincing way.

Minutes

Progress in this area has been made by using the press conference immediately following the meetings as an opportunity to present the arguments underpinning the monetary policy assessment that were advanced in the meeting. Sometimes, however, such occasions can cause confusion, as illustrated on May 10 after the surprise revision of monetary aggregates.

Other public statements

No clear hierarchy of occasions for public statements has been established, but some progress has been made in the statements issued by ECB Council members. Statements are issued less frequently than previously and give the impression of a higher degree of coordination. On the other hand, contradictory interventions on monetary policy matters made by officials in the central banks belonging to the Eurosystem but that are not members of the ECB Council have unnecessarily added to the confusion.

4. Conclusions

Strategy and transparency are important. Some improvements have been made on transparency. It was particularly important for the ECB to communicate clearly to the markets that it did not believe that there is a 'new economy' in the euro area. This also constituted a clear signal to wage-setters that the ECB would react to high wage increases. But a wide gulf remains between, on the one hand, the perception of the lack of transparency by market participants and most analysts and, on the other, the declared intention of the ECB to be transparent in its communications. The good intentions of the ECB cannot be doubted as they are backed up by the dissemination of a vast amount of material. Nevertheless, the continuing credibility gap in financial markets indicates that improvements within the current institutional set-up are possible and should be pursued.

But a muddled strategy will always remain difficult to communicate. And on strategy, the muddle is even worse after the latest revision to the money supply data. Last year we suggested a clear, operational definition of the goal of monetary policy to avoid the ambiguities linked to the current definition (i.e. keeping inflation in the medium term below 2% without specifying a lower limit): 'keep year-on-year core inflation at 1.5% with a tolerance band of $\pm 1\%$ '. Given the size of the oil shock and the major difference between headline and core inflation, a more explicit reference to core inflation in the period under review would have greatly benefited the communication strategy. This is particularly relevant because the ECB stopped tightening more than 6 months before the peak in headline inflation and cut interest rates with inflation still well above 2%. Now that core inflation is again on the rise, and close to the 2% limit, this approach would call for great caution.

CHAPTER IV SUMMARY AND CONCLUSIONS

This report has argued that the improvement in the economic performance of Europe over the second half of the 1990s has been mainly cyclical. There are no signs of significant structural change. Productivity growth has actually slowed down in Europe over the last five years (whereas it increased in the US) and the large increase in employment over this time period was mainly due to the recovery from the recession of 1991-93. Labour market indicators for 2001 are not much better than those for 1990, the last cyclical peak. Moreover, the Beveridge curve seems to have shifted outwards. The vacancy rate is now much higher than it was in the past given the still substantial unemployment. This indicates that labour markets do not work much better and bottlenecks have already arisen, in particular in the areas where technological progress is fastest. All in all, it appears that the European economy had closed the output gap in 2000-01, and subsequently has had to observe the moderate speed limit set by the growth rate of potential output, i.e. 2 to 2½%.

Against this background, it is easier to understand the current (mid-2001) state of the European economy: inflationary pressures that are proving to be more persistent than anticipated, a slowdown in growth coupled with continued weakness of the euro.

Of course, the figures for the European, or euro-area average, hide large differences between member countries. Nevertheless, we found that the four large euro-area economies all share problems in productivity and labour markets. There are some smaller countries that perform much better, but they remain the exception. The EU average is dominated by the large countries, which account for over three-quarters of its economy. The UK performance is similar to that of the large euro-area countries in terms of productivity, but not in terms of labour markets.

What does this analysis imply for the longer-term prospects of the European economy? One clear implication is that the speed limit for Europe remains rather low. In other words, potential growth rates have not increased in recent years. A rough estimate of the speed limit for Europe can be obtained by just adding the estimates for labour productivity and employment growth.

Labour productivity has slowed to around 1.5% over the last five years. Some of that slowdown might be welcome since it was a consequence of a decrease in the rate at which labour was being substituted by capital. Wage moderation has helped this process along. We would expect that labour productivity growth should pick up slightly in the near future. Investment has

increased and employment growth is likely to be much less, so that the reversal of capital deepening should stop. A rate of about 2% for labour productivity would imply a return to the pattern that prevailed until 1995. This rate of growth might be attainable again in the medium term, although it represents an upper bound of the likely feasible range.

Our analysis of the *labour markets* suggests that, although there have been no real reforms, some further modest improvement in employment rates can be expected under the influence of the ongoing shifts in the structure of employment – in particular the increase in the share of the labour force with university education. This effect might lead to a trend growth of employment of about 0.3% p.a. over the next ten years.

The sum of the two effects mentioned above yields a growth rate of trend output of 2.3% p.a. This is not a figure that one should take literally as there is always a considerable degree of uncertainty surrounding this type of projection, but it suggests that the potential growth rate for Europe is unlikely to be above 2.5%. This is somewhat lower than the ‘central scenario’ contained in a recent discussion paper published by the Commission (McMorrow and Roeger, 2001), but it is otherwise within the range of other available estimates.

Our finding that the acceleration of productivity growth in the US (at least relative to the EU) has solid roots and that it is unlikely that the EU will soon catch up implies that the dollar should remain strong for some time. Looking backwards, i.e. comparing the present level of the euro to past averages in terms of unit labour costs or prices suggests that the euro is heavily undervalued. Looking forwards, as we have tried to do, a somewhat different picture emerges: If the marginal productivity of capital increases more in the US because the new economy is concentrated there, one would expect that capital would flow towards the US.

While this factor might not be able to explain all of the depreciation of the euro against the dollar, it is consistent with the broad features of the changes¹ in the savings/investment balance for the US (and the euro area). Over the 1990s, changes in investment rates have been matched one-to-one by changes in the current account. For example, between 1995 and 2000,² the US current account deficit increased from 1.3% of GDP to 4.3% (in 2000), a deterioration of 3.0% of GDP. During the same period, US investment rates rose by almost exactly the same amount (from 17.7 to 20.8% of GDP). During this same period, the current account of the euro area deteriorated by

¹ By looking at changes, we do not have to take a stance on whether the US has a structural current account deficit.

² This period reflects the start of the acceleration of productivity in the US. Looking at the figures for the entire decade yields a similar picture.

0.7% of GDP, which is exactly equal to the increase in its investment rate. All of the changes in the current account can thus be accounted for by changes in investment. While the exact coincidence might overstate the link, it does illustrate the general point that backward-looking indicators such as purchasing power parity are of limited usefulness in predicting exchange rates in the short run when capital is mobile.

Our diagnosis of the problems of European labour markets is not new, nor are our policy recommendations. It has been known for some time what needs to be done. We hope, however, that the complacency of policy-makers, induced by the relatively positive developments over the last few years, can be shaken by the observation that these positive developments might have been mainly a cyclical phenomenon that could disappear quickly as the cycle turns.

If policy-makers are serious about the self-imposed goal of realising an employment rate and productivity performance close to the US levels, fundamental reforms are inescapable. Otherwise, employment will not progress much and the speed limit of the European economy will remain frustratingly low.

Regarding monetary policy, we would thus support the position the ECB took when, at the end of 2000, it did not increase the reference value for its money growth rate. On present evidence, no increase will be needed for 2002 either. We also share the view that under the present circumstances a further easing of monetary policy might become appropriate, if demand weakens even further. But inflationary pressures remain too high in the short run to allow for a further rapid fall in official interest rates, especially in light of the fact that the weakness of the euro has already made monetary conditions *de facto* rather easy by historical standards. Moreover, the increase in headline inflation, together with the persistent weakness of the euro and the tightening of labour markets in some segments, endanger wage moderation that has provided the key support so far for medium-term price stability.

We thus agree that the thrust of the ECB's policy has been broadly correct. However, the ECB has consistently failed to explain its decisions convincingly and to communicate its strategy in terms that can be understood by financial markets and academic observers alike. This problem has been highlighted in previous reports of the CEPS Macroeconomic Policy Group and by many other financial market observers. The lack of transparency of the ECB is not a new problem, but it has become acute recently, especially after the series of surprises in April and May of this year. The sudden 'discovery' that a significant part of M3 is held by foreigners and should thus be excluded from money supply figures, is just an additional and hopefully the final nail in the proverbial coffin for the monetary pillar. It is no longer possible to believe in the signalling property of an aggregate for which the

growth rates cannot be calculated straight from the levels and for which, by the ECB's own admission, all the figures will be provisional until the end of this year.

The good news is that the policy of the ECB can in any event be better understood in terms of a medium-run inflation target, i.e. core inflation, rather than in the context of the official two-pillar strategy. Acknowledging this fact would make it much easier for the ECB to communicate its decisions and would increase transparency for everyone concerned.

APPENDIX 1

MONETARY POLICY AND THE NEW ECONOMY

This appendix presents a simple macroeconomic model to investigate the implications of the so-called ‘new economy’ for monetary policy. The specification of the model is standard except for explicitly allowing the possibility that the new economy (intended as a permanent increase in total factor productivity that raises potential output growth) arrives, even though the central bank and /or the private sector may not realise that.

The model assumes that in a given period the private sector engages in wage negotiations, based on their expectations about the central bank's monetary policy. Then two events can take place. First, a random supply-side shock materialises. Second, the economy may permanently shift onto a higher trend output because of the productivity improvement due to the new economy. The central bank then determines the money supply, reacting to the supply shock and accommodating it in part in the pursuit of its objective function (which, as is customary, provides for the stabilisation of output above its full employment level). In case of a temporary shock, the central bank weighs the cost of deviations of output from the target level against the cost of inflation, according to a loss function that formalises this trade-off. However, in the case of the new economy, the central bank adjusts its objective accordingly and thus sets a higher target output level in its output-inflation trade-off.

When setting monetary policy, however, the central bank is not sure whether the departure of output from its steady-state level is due to a transitory supply shock or whether, at the same time, the arrival of the Fomy has increased trend output. The central bank will choose its monetary policy according to its prior view about the new economy. For the sake of simplicity, the central bank is assumed to be adamant about its convictions on the new economy and to act accordingly even when it is wrong (both Type-I and Type-II errors are considered). After the central bank has set money supply and thus determined inflation, production takes place.

The private sector commits itself to the wage level before the central bank acts. Hence wage-setting and production depend on the private sector's anticipation of the central bank's view on the new economy. Like the central bank, wage-setters do not know for sure whether trend output has increased as a result of the new economy. They will thus act on the basis of their prior belief on the issue and this belief need neither be true or the same as that of the central bank. The central bank and the private sector are, in general, not sure about each other's view regarding the arrival of the new economy and so will act on the basis of their conjecture on the other's belief on whether the new economy has arrived or not. For the sake of simplicity, we only

consider the role of one agent's opinion about the other agent's opinion on the new economy when prior beliefs of the central bank and the private sector differ.¹

As shown below, the possibility that the central bank and the private sector misunderstand each other's views on the new economy is a source of inefficiency and welfare loss.

The model

$$(1) \quad m = y + \mathbf{p}$$

$$(2) \quad y = \bar{y}[+ NE] + (\mathbf{p} - \mathbf{p}^e) + w$$

$$(3) \quad \Lambda = [y - k(\bar{y}[+ NE])]^2 + b\mathbf{p}^2, k > 1$$

This model encompasses two possible steady states, one with new economy (*NE*) and one without. All variables are in logarithms and the time subscript is omitted. Equation (1) is a simple aggregate demand, with m money stock, y actual output and δ actual inflation (with velocity assumed exogenous). Equation (2) is the aggregate supply, where \bar{y} is old economy steady-state output, $(\delta - \delta^e)$ the difference between actual and expected inflation and w a random shock with mean 0. If there is a new economy, the steady-state output will rise by the factor NE . For the sake of simplicity, we assume workers to stick to extreme wage moderation so that workers only demand inflation compensation and, ex ante, do not demand a share of the increase in total factor productivity coming from the new economy.²

The central bank sets policy in order to minimise its welfare loss function \ddot{E} a standard quadratic function in output and inflation, with $b > 0$ determining the trade-off between the two objectives. The steady-state output is multiplied by the factor $k > 1$, so that, as is customary, the central bank is assumed to have an objective for output above its full employment level.

Whether a new economy has arisen is not known. Beliefs about the advent of a new economy (*NE*) are modelled in a simple way. Agents believe (rightly or wrongly) only with probability zero or one that there is a new economy ('subjective certainty'). This is referred to in what follows as prior. We

¹ Moreover only the agent who has the prior belief that is consistent with the true state of the world is taken to consider the possibility that the other might be wrong; no higher-order second guessing is assumed to take place.

² This seems reasonable. If the new economy raises *total* factor productivity, then this is the gain to the economy that can be distributed to factors without raising the cost of factors in use. Even if part of the TFP growth were absorbed by current employees' wages, jobs would still be created.

assume that agents are imperfectly informed about each other's beliefs. Indeed the key objective of the model is to show that imperfect information on the part of the private sector concerning the central bank's view of the new economy is a source of inefficiency.

Model results I

There is no NE and everybody realises it

This is the reference case. Plugging (2) into (1) yields actual inflation as a function of expected inflation:

$$(4) \quad \mathbf{p} = 1/2(m - \bar{y} + E_{PS}(\mathbf{p}) - w)$$

This can be used to calculate the actual level of output as a function of expected inflation:

$$(5) \quad y = 1/2(m + \bar{y} - E_{PS}(\mathbf{p}) + w)$$

After the shock has materialised, the central bank determines inflation. Thus when determining wages and output, the private sector forms an expectation of inflation, from (1):

$$(6) \quad \mathbf{p}^e = m^e - \bar{y}$$

The private sector expects output to be at its steady-state level, since shocks have mean zero. The expectation of the money stock depends on the central bank's behaviour. This is determined by minimising the loss associated with deviations of output from target and inflation. Inserting (4) and (5) into \ddot{E} and minimising with respect to m , one obtains

$$(7) \quad m = \frac{1}{1+b} [(2k-1+b)\bar{y} + (1+b)E_{CB}(\mathbf{p}) - (1-b)w]$$

The first term in brackets relates trend output (as assessed by the central bank) into money supply. This term would be augmented by NE if, in the opinion of the central bank, output trend had shifted. The second term in brackets denotes the central bank's belief about private sector wage-setting, while the third term is the central bank's reaction to what it perceives to be the temporary shock.

Since both the central bank and the private sector in this case are expected to share their views on the new economy (and to correctly know each other's beliefs about it), $E_{CB}(\delta) = E_{PS}(\delta)$, then

$$(8) \quad m = \left(\frac{k-1}{b} + 1 \right) \bar{y} - \frac{1-b}{1+b} w$$

The second term on the right hand side is the central bank's reaction to the shock – counter-cyclical so that the central bank decreases money supply in response to a positive supply shock. The first term is the expected money stock m^e . Inserting m^e into (6), yields expected inflation which shapes wage-setting. Using (4) and (5), this determines actual output and inflation:

$$y = \bar{y} + \frac{b}{1+b} w$$

$$p = \left(\frac{k-1}{b} \right) \bar{y} - \frac{1}{1+b} w$$

These standard results show that, whereas expected output is equal to its ‘natural’ level, expected inflation is positive – the inflation bias that results from the central bank’s attempt to exploit wage commitment to try and increase output above its full employment equilibrium.

Model results II

The new economy is correctly anticipated by all agents

NE has increased steady-state output, and both the private sector and the central bank realise this (knowing that the other has realised this too) Output then rises by the full impact of NE. Inflation also rises, as $k > 1$ and this makes the inflation bias proportional to the level of steady-state output. In the following, w , the temporary shock, is omitted from the presentation of the results, given that, in all cases, the response to w is the same and leads to

higher output for $\frac{b}{1+b} w$, and to lower inflation for $\frac{1}{1+b} w$.

$$y = \bar{y} + NE$$

$$p = \frac{k-1}{b} (\bar{y} + NE)$$

Model results III

The new economy arrives and all agents are surprised

In this case, the impact of the NE hits the economy at the same time as the shock. When setting wages, the private sector did not expect any NE and the central bank assimilates a positive realisation of NE to that of a temporary shock. The private sector believes that the central bank will do this³ and,

³ Of course, there can also be cases where both the private sector and/or the central bank are wrong in their beliefs about each other's perception of the new economy. In this appendix, the focus is only on a few such cases.

consequently, does not update its inflation forecast. The result is that the central bank treats the NE as a positive shock and, given its loss function, decreases the money stock. Since the private sector had forecasted this behaviour, the economy behaves as if the NE was indeed an unexpected shock.

$$y = \bar{y} + \frac{b}{1+b} NE$$

$$p = \frac{k-1}{b} \bar{y} - \frac{1}{1+b} NE$$

The NE is commonly misperceived as a shock. Hence, it is accommodated by the central bank. As the private sector has not anticipated the NE and thus correctly anticipated the central bank's reaction, output is reduced compared to the situation where both sides had read the signs correctly, since there the central bank would not have accommodated the NE as a shock.

Model results IV

The new economy is correctly anticipated by the private sector while the central bank does not.

The private sector anticipates the arrival of the new economy correctly, while the central bank interprets it ex post as a temporary shock. Consequently, the central bank will not update its target output level to $k(\bar{y} + NE)$ but maintains it at $k\bar{y}$. If, however, the central bank does not communicate its assessment about the new economy clearly, the private sector must form a belief on the central bank's view while negotiating wages. In any event, the private sector knows that, whatever the central bank's prior belief, the central bank will observe higher output due to the new economy. Therefore, the private sector will either act on the basis of the expectation that the central bank realises that the new economy has arrived or, alternatively, on the basis of the belief that the central bank will treat the new economy as a temporary shock. These two cases are analysed in turn.

PS thinks CB believes NE □0

The private sector assumes the central bank shares its view on the arrival of the new economy, so that the central bank revises its output target upwards and, accordingly, does not use a decrease in the money supply to accommodate a perceived, temporary positive supply shock. The private sector is, however, wrong in this belief about the central bank, which instead will change the output target but rather accommodate the apparent temporary shock by decreasing money supply. As a result of this communications failure, inflation expectations are biased upwards when wages are set and

actual inflation will come as a negative surprise to the private sector, leading to a loss in output.

$$y = \bar{y} + \left[\frac{b}{1+b} - \frac{k-1}{2b} \right] NE$$

$$\mathbf{p} = \frac{k-1}{b} \bar{y} - \left[\frac{1}{1+b} - \frac{k-1}{2b} \right] NE$$

PS knows CB believes NE = 0

Consider now the case where the private sector is instead in a position (possibly because the central bank clearly expressed its views on the new economy) to forecast the (wrong) pessimism of the central bank correctly. As a result, the private sector anticipates the monetary contraction so that wage-setting is consistent with the (wrong) policy by the central bank not to revise its output target. No output is lost this time and society can fully reap the benefits of the new economy. Indeed, this provides what we regard as the key intuition offered by the analysis. The central bank should be very clear about its beliefs on the new economy, even running the risk of being wrong. Society is better off if the central bank is clear in its mistake than being ambiguous and opening the flank to misunderstandings with the private sector.

$$y = \bar{y} + NE$$

$$\mathbf{p} = \frac{k-1}{b} \bar{y} - \frac{2}{1+b} NE$$

Finally it is worth noting that the outcome in this case provides for lower inflation than if the central bank recognises the arrival of the new economy and acts accordingly, raising its output objective. The reason for this is the structure of the model that implies that the central bank, in trying to stabilise output above the full-employment level, generates an inflationary bias that is proportional to the output target. Hence the higher the output target of the central bank, the higher is inflation. So when the central bank wrongly underestimates full employment output, this mistake benefits society as it leads to a lower inflation bias. However, we do not attach any particular relevance to this result as it is specific to the definition of the model and we do not think it would extend to other set-ups. Conversely, we think that the policy prescription that the central bank should be very clear about its assessment on the new economy (even at the risk of being wrong!) is much more robust and holds in a wide range of set-ups where wage-setting depends on anticipated central bank behaviour, which is in turn contingent on the assessment about the full-employment level of output.

Model results V

The central bank correctly realises the arrival of the new economy whereas the private sector does not.

The private sector is wrong and does not realise that the new economy has arrived. Hence, while setting wages, it does not expect the central bank to consider that the new economy⁴ has arrived and makes a mistake on the central bank's assessment. Conversely, the central bank (correctly) perceives that the new economy has arrived and adjusts the output target accordingly. The setting of monetary policy, however, also requires a view on the part of the central bank about the public sector's opinions on the new economy and the related inflation expectations. The latter have implications for the effects of monetary policy on output and inflation that the central bank has to consider.^{5,6}

Since communications with the private sector is taken to be imperfect, two cases are considered: a) the central bank is in error about the private sector's view on the new economy, as it attributes its (correct) view to the private sector too, b) the central bank correctly realises that the private sector behaves on the basis of a wrong assessment of the new economy.

CB thinks PS believes NE \square 0

The central bank is wrong about the private sector's belief on the new economy underpinning the wage-setting. The private sector anticipates no NE and, accordingly, that the central bank will not adjust its output target. In contrast, not only does the central bank adjust its target output upwards, but it also increases money supply because it overestimates private sector's inflation expectations. The resulting monetary policy is the same as in the case where both agents correctly anticipate that the new economy has arrived. Output, however, is higher because the new economy was

⁴ For simplicity sake, we do not discuss the case where the private sector contemplates the possibility of the central bank acting as if the new economy were there, when the private sector itself does not believe that (and, by the way, is wrong).

⁵ Indeed, this extra prior on the part of the central bank has been necessary in all the cases discussed so far but, for the sake of simplicity, it was not analysed. This is because the analysis has so far considered only two types of cases: a) the central bank and the private sector have the same view on the new economy (and are assumed to know that); and b) the two agents have different views but the central bank turns out to be wrong (and hence the analysis of its prior on the private sector's belief is omitted).

⁶ Technically, the central bank's belief about wage-setting enters equation (7), the optimal money supply rule, as $E_{CB}(\delta)$. In contrast, the private sector's inflation expectation $E_{PS}(\delta)$ enters equations (4) and (5).

(erroneously) not taken into account while setting wages. The central bank has inadvertently surprised the private sector.

$$y = \bar{y} + \left[1 + \frac{k-1}{2b}\right] NE$$

$$p = \frac{k-1}{b} \bar{y} + \frac{k-1}{2b} NE$$

CB knows PS believes NE = 0

This time the central bank correctly anticipates that the private sector is pessimistic about the new economy and, consequently, expects lower inflation. The central bank take that into account in setting monetary policy and, this time, it does willingly surprise the private sector with monetary policy. Whether this results in higher or lower inflation and output than in the previous case depends on whether b , the parameter expressing the central bank's inflation aversion, is larger or smaller than 1. For $b > 1$, both output and actual inflation are larger. The intuition for this result is that, from the central bank's point of view, a deliberate inflation surprise is 'worthwhile' up to the point where the parameter of inflation aversion equals the unitary elasticity of aggregate supply to inflation surprises. Given that for simplicity the model assumes this elasticity to be equal to 1, $b > 1$ is the condition to make deliberate inflation surprises larger than inadvertent ones.

$$y = \bar{y} + \left[1 + \frac{k-1}{1+b}\right] NE$$

$$p = \frac{k-1}{b} \bar{y} + \frac{k-1}{1+b} NE$$

Model results VI

The new economy is not there and some agents believe it has arrived.

So far the case when the new economy is not there has only been considered in the baseline scenario (Model result I), where both the central bank and the private sector agree on the (correct) assessment about the new economy. Clearly, in addition to that, all the other cases can be considered when the new economy is not there and the central bank and/or the private sector instead believe it has arrived. As the discussion of these results would be analogous to the ones analysed so far, we omit it for the sake of brevity and only report the model results in a table.

Conclusion

We have proposed a model for analysing the implications for monetary policy of the possibility that the speed limit of the economy is raised by a permanent increase in productivity brought about by the new economy. To add realism to the model, we have explicitly considered that neither the central bank nor the private sector is sure of whether the new economy has actually arrived or not. In particular, the central bank is supposed not to be able to discriminate between permanent and transitory supply shocks immediately. To keep the analysis simple, however, we have not modelled the learning behaviour of the private sector and the central bank, but rather assumed that agents act on the basis of their priors, to be subsequently revised following the outcome of output and inflation.

Even this simple model provides useful insights on the interaction of the central bank and the private sector about their views on the new economy, in particular as regards the inefficiency and the output losses entailed by the imperfect communication between the central bank and the private sector. The analysis leads us to formulate an unambiguous policy prescription that we trust has a general validity. **The central bank should communicate very clearly its views on whether the new economy has arrived or not, without fearing to be wrong** – a real possibility in the tricky business of disentangling permanent from temporary changes in productivity. This is indeed the case because the cost of a possible wrong assessment on the part of the central bank would in any event be reduced by the awareness on the part of the private sector about the views held by the central bank. Conversely, the cost of a mistake on the part of the central bank (whether an actual mistake or a correct view taken to be wrong by the private sector) is compounded by the lack of clarity on the central bank's views.

Table A.

Model results when the new economy is not there ($NE = 0$)

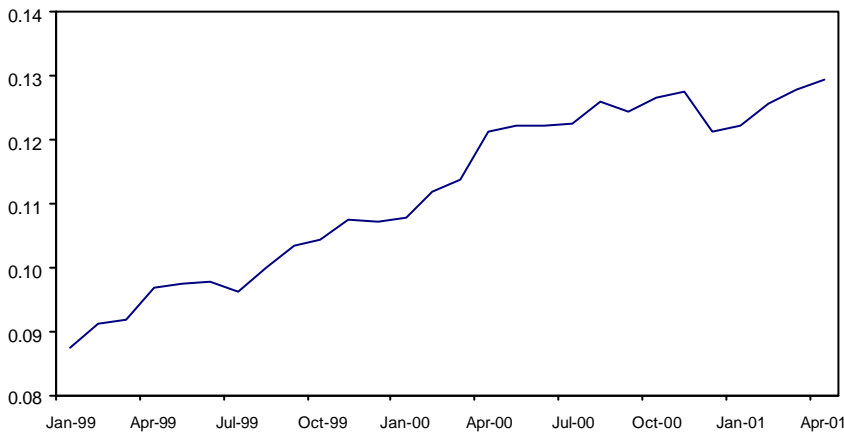
Opinion of the central bank	$NE = 0$	$NE \neq 0$
<p>Opinion of the private sector</p> <p>$NE = 0$</p>	<p>$y = \bar{y}$</p> <p>$p = \frac{k-1}{b} \bar{y}$</p>	<p><u>PS thinks CB believes $NE = 0$</u></p> <p>$y = \bar{y} + \left[\frac{k-1}{2b} + \frac{1}{1+b} \right] NE$</p> <p>$p = \frac{k-1}{b} \bar{y} + \left[\frac{k-1}{2b} + \frac{1}{1+b} \right] NE$</p> <p><u>PS knows CB believes $NE \neq 0$</u></p> <p>$y = \bar{y}$</p> <p>$p = \frac{k-1}{b} \bar{y} + \left[\frac{k-1}{2b} + \frac{1}{1+b} \right] NE$</p>
<p>$NE \neq 0$</p>	<p><u>CB thinks PS believes $NE = 0$</u></p> <p>$y = \bar{y} - \frac{k-1}{2b} NE$</p> <p>$p = \frac{k-1}{b} \bar{y} + \frac{k-1}{2b} NE$</p> <p><u>CB knows PS believes $NE \neq 0$</u></p> <p>$y = \bar{y} - \frac{k-1}{1+b} NE$</p> <p>$p = \frac{k-1}{b} \bar{y} + \frac{k-1}{b(1+b)} NE$</p>	<p>$y = \bar{y} - \frac{b}{1+b} NE$</p> <p>$p = \frac{k-1}{b} \bar{y} + \frac{1}{1+b} NE$</p>

APPENDIX 2

IMPACT OF NON-EURO AREA RESIDENTS' HOLDINGS OF NEGOTIABLE INSTRUMENTS ON M3 GROWTH RATE

M3 is supposed to measure the money holdings that are likely to be linked to the demand for domestic goods and services produced in the euro area. This is the concept of M3 that should be relevant for the assessment of the impact of monetary developments on price stability in the euro area. Therefore, from a conceptual point of view, the holdings of negotiable instruments by non-euro area residents should be excluded as these holdings are typically financial investments that are unlikely to be used for the acquisition of goods and services in the euro area. However, in practice, it may be difficult to identify the residency of the holder for certain instruments that are included in the definition of M3. Moreover, before the start of Stage Three of EMU, the holdings of these instruments were rather small and their growth was moderate. Therefore, the distortion to M3 as a result of the difficulties in breaking down holdings of residents and non-residents was negligible. Due to this, the ECB decided to include all the outstanding amount of negotiable instruments into M3.

Share of negotiable instruments in M3
(as a percentage of the stock of M3)



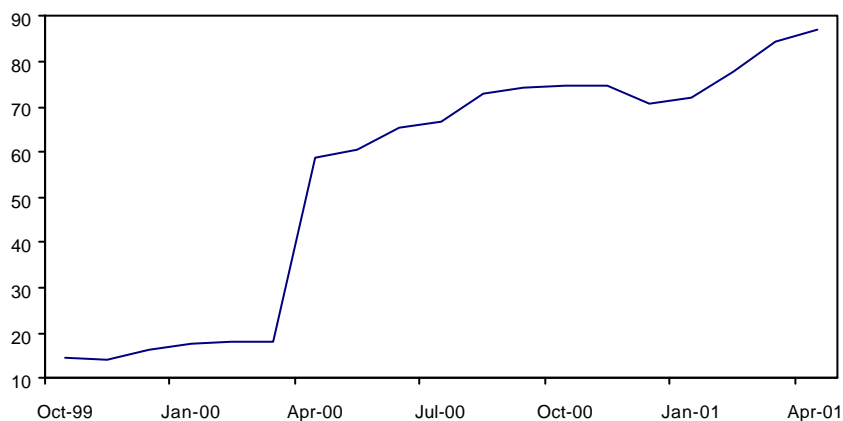
Source: ECB.

Since the start of Stage Three of EMU, however, the increase in expansion of the negotiable instruments has been dramatic. At some point, the annual growth rate reached 20%. As a result the share of the negotiable instruments in the stock of M3 has increased from 10% to almost 13%.

According to the ECB, the rapid growth of the holdings of negotiable instruments has been fuelled by a significant demand from non-euro area investors. It was announced in the *Monthly Bulletin* of May 2001, that there are indications that the increased holdings of negotiable instruments by non-euro area residents have led to an upward distortion of the M3 growth over the recent months. The ECB has already obtained empirical evidence concerning the holdings of money market fund shares/units by non-euro area residents. The impact on the annual growth rate of M3 was negligible until late summer 2000. Since then, the size of the distortion has increased substantially and at the present it amounts to around *half a percentage point*. In April 2001, the annual yoy growth rate of M3 was 5.2%. If the non-euro area resident holdings of money market fund shares/units are taken into account, it drops to 4.7%.

The influence of the non-euro area resident holdings of money market fund shares/units is quite pronounced. Unfortunately, the levels can hardly be used for further analysis as there is a sudden jump between March and April 2001, which is due to an increase in the number of Monetary Financial Institutions that report to the ECB.

Effect on M3 of non-euro area resident holdings of money market fund shares/units (in EUR billions)



Source: ECB.

Unfortunately, it is impossible to compare the amount of money market fund shares/units held by non-euro area residents with the total, as the ECB does not provide separate figures in its statistics. Money market fund shares/units are usually merged with money market paper. However, the proportion between money market funds shares/units and money market paper is approximately 3:2, which brings us to figures of about €340 billion and €227 billion, respectively. According to these estimates, the share of non-euro area resident holdings of money market fund shares/units in the total holdings is approximately 26%.

As regards non-euro area residents' holdings of other marketable paper included in M3, the results are not yet ready for publication. The ECB is currently undertaking a statistical project which should provide more precise evaluation of the impact of non-euro area residents' holdings of money market paper and short-term debt securities with an initial maturity of up to two years. According to preliminary results, the impact may be of a similar magnitude as the one of non-euro area residents' holdings of money market fund shares/units. This further increases the estimated distortion of the annual M3 growth rates. Although the level of the growth rate has been influenced, the trend development seems to be largely unaffected.

The ECB estimates that it will not be able to publish a revised M3 series until the end of this year. Only then will a revised series become available, which will take into account the influence of the non-euro area residents' holdings of all negotiable instruments on M3.

Composition of money holdings

April 2001 (non-seasonally-adjusted data in billions of euro)			
Negotiable instruments	Total	Euro-area residents	Non-euro area residents
Money market funds shares/units	567	480	87
Money market paper			*
Debt securities with maturity up to 2 years	123	*	*

* The ECB announced that the exact figures regarding the non-euro area residents' holdings of money market paper and debt securities issued with maturity up to 2 years should be published towards the end of the year.

Source: ECB.

APPENDIX 3

A MONETARY CONDITIONS INDEX FOR THE EURO AREA*

Why an MCI for the euro area can be useful?

The monetary conditions index (henceforth MCI), pioneered by the Bank of Canada and the Reserve Bank of New Zealand, is traditionally associated with the conduct of monetary policy in very open economies (at times it has even been used as an explicit target for monetary policy). In fact, the MCI is defined as an appropriate linear combination of the relevant interest and exchange rates so as to gauge the impact on liquidity conditions of movements in the exchange rate in the same metric as the impact of changes in the interest rate.

In open economies, the exchange rate has a significant impact on aggregate demand and hence the assessment of the monetary stance cannot only be based on domestic indicators, e.g. interest rates or money growth. However, when movements in the exchange rate are as wide as they have been for the euro since its introduction, the MCI also starts to become a useful indicator for economies that are relatively closed, such as the euro area as a whole. Certainly the ECB must not place too much emphasis in its communications policy on the MCI, for there is the risk that this could be misconstrued as a policy of quasi-exchange rate targeting, which is inappropriate for well known reasons. On the other hand, the implications for the monetary stance of changes in the euro have to be explicitly acknowledged by the ECB and this has not always been the case in the last six months or so.

An MCI for the euro area

The MCI is a weighted average of an interest rate and an exchange rate. Theory says that the weights to define the MCI should be derived from an estimate of the long-run interest and exchange rate elasticities¹ of the

* The analysis draws on “A Monetary Condition Index for Euroland – or why a weak euro stands in the way of a rate cut”, *Europe Weekly*, Deutsche Bank Global Markets Research, 20 April 2001.

¹ The use of long-run elasticities has the obvious shortcoming of assuming away the different lags in the transmission of interest and exchange rate changes to aggregate demand. A recent paper (Batini and Turnbull, 2000, ‘Monetary conditions indices for the UK: A survey’, Bank of England, External MPC Unit, Discussion Paper No. 1) has put forward a new definition of the MCI to address

aggregate demand equation. From this equation, it is easy to derive a simple output gap that assesses the relative impact of interest rates vis-à-vis the exchange rate on demand when they depart from their equilibrium level.

This concept is, however, notoriously difficult to implement. Problems are encountered in the definition of the relevant macroeconomic variables: the very measurement of output gap is subject to daunting methodological problems. The identification of the exchange rate (real vs nominal, the choice of the trade weights) and the interest rate (real vs nominal, which maturity and instrument) is by no means trivial. Moreover, the calculation of an equilibrium interest rate is problematic to say the least and, finally, the estimation of the coefficients is unavoidably arbitrary. All these concerns argue for a healthy degree of caution in interpreting the evidence obtained from any MCI, but more pragmatically, they point to the route we followed. The robustness of the conclusions were tested by considering a wide range of variants in defining the MCI itself.

In our empirical application of the MCI to the euro area, the index is calculated as the weighted average of the percentage point change in nominal (or real) interest rates and percentage change in the nominal (or real) effective exchange rate, i.e.

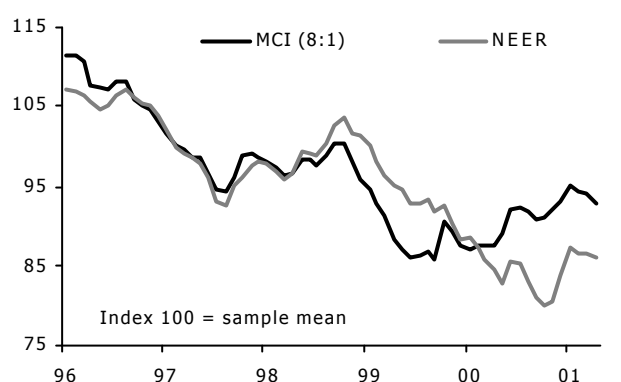
$$MCI_t = \mathbf{a}(i_t - i_{t-B}) + \mathbf{b}(e_t - e_{t-B})$$

where α is the interest rate weight, i the interest rate, β the exchange rate weight and e the effective exchange rate expressed in logarithm. The subscript B refers to a base period. The ratio α/β indicates the size of the impact of interest rates relative to the exchange rate on the medium-term target. The value of this ratio varies inversely with the degree of openness of an economy: the more closed is the economy, the less important is the impact on aggregate demand of changes in the exchange rate. Indeed, this inverse relationship is confirmed by the empirical literature on MCI. The ratio between interest and exchange rates varies from 2:1 for New Zealand, Sweden, Norway (i.e. the impact of the interest rate on demand pressure is twice as large as the one from the exchange rate; or a one percentage point change in interest rate is equivalent to a two percentage point change in the exchange rate) to 10:1 for Japan and the United States, 3:1 for Canada, France, Italy, and the UK and 4:1 for Germany (for the euro-area countries, these values take the trade within the area into account).

this problem. Although ingenious, the proposed solution relies on the econometric estimation of a fully-fledged dynamic model, which poses formidable challenges and tends to produce results that are not robust to even simple changes in the specification.

Within this range of values, the MCI we customarily use has a α/β ratio of 8:1 corresponding to weights of .89 and .11 for the interest and exchange rates, respectively. These weights in turn imply that a 10% depreciation of the effective exchange rate is equivalent to a 125bp decline in interest rates. They were selected as middle-range values in terms of similar studies conducted by other organisations. These weights applied to the 3M Euribor interest rate (i) and to the nominal effective exchange rate of the euro as reported by the ECB in the *Monthly Bulletin (EER)*, respectively.

Weakness of the euro has offset most of the impact on MCI of interest rate hikes



Source: Deutsche Bank Global Markets Research.

Inspection of the developments in the MCI reveals two key findings:

1. Monetary conditions have eased significantly after the inception of EMU, mostly as a result of the depreciation of the euro.
2. The continuing depreciation of the euro has offset a large part of the tightening of monetary conditions stemming from the interest rate hikes since November 1999.

These are important conclusions for the assessment of the outlook for monetary policy. Indeed, either one believes that the equilibrium exchange rate of the euro has significantly depreciated since the inception of EMU (due for example to an upward shift in trend productivity in the US which has not occurred yet in the euro area), or monetary conditions are less tight than it is usually perceived to be the case. In other words, if the real exchange rate of the euro is currently below its equilibrium value, it is bound to appreciate. This can happen through an appreciation of the nominal exchange rate and this is the way that would be most beneficial for the

euro-area economy. Alternatively, the appreciation in real terms can take place through inflation – a risk that implies that the persistent weakness of the euro is an important source of inflationary pressures.

The robustness of the assessment of MCI

So far the discussion of the MCI has focused on the changes that have taken place since the inception of the ECB without passing any explicit judgement on the appropriateness of the level itself of the monetary conditions. Indeed the analysis of a neutral level for the MCI must rest on the assessment of the equilibrium level of the exchange rate – a matter that is tricky even from a theoretical point of view for reasons recalled in the main text.

These arguments suggest extreme caution in drawing judgements on monetary policy from the mere *level* of the MCI. However, they do not impair the importance of the conclusions reached on the basis of the assessment of *changes* in MCI itself.

Indeed, the assessment that

1. monetary conditions have eased significantly after the inception of EMU, mostly as a result of the depreciation of the euro, and that
2. the continuing depreciation of the euro has offset a large part of the tightening of monetary conditions stemming from the interest rate hikes since November 1999,

has by itself an important bearing on the outlook for monetary policy, even abstracting from the level of the MCI. The crucial proviso, however, is that this assessment must be robust to a convincingly wide range of alternatives in the definition of the MCI. The remainder of this appendix is devoted to testing the robustness of these two conclusions.

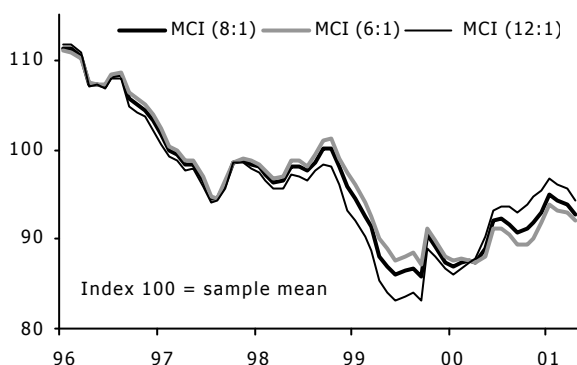
Alternative weights for the MCI

The theoretical arguments underpinning the choice of the weights to define an MCI have been discussed above. As noted, however, the empirical application relies on unavoidable elements of arbitrariness, which are further compounded by the uncertainty on the structure of the euro area due to the lack of sufficiently long macroeconomic time series since the introduction of the euro. How important is this for the conclusions for monetary policy reached on the basis of the analysis of an MCI? Fortunately not much, as the figure below shows.

The figure provides various definitions of MCI calculated using different weights applied to the 3M Euribor and to the nominal effective exchange rate of the euro. Weights vary from 6:1 to 12:1, reflecting the spectrum of weights used across countries in the world with a degree of openness similar to that of the euro area. Expressed with reference to the rise in short-term

interest rates equivalent to a 10% appreciation in the currency, the range of weights corresponds to a range of interest rate changes from 85bp to 165bp. With its weights 8:1, the MCI discussed in the previous section (thick black line in the figure) has an intermediate position, in keeping with the notion that the sensitivity analysis is performed in both directions as regards the importance of the exchange rate. To make the comparison more pertinent, all indices are based 100 in the average over the sample period.

Key conclusions from the MCI are not affected by the choice of weights



Source: Deutsche Bank Global Markets Research.

Inspection of the chart immediately reveals that, despite the broad range of weights, the overall movements are the same across MCIs. *Thus, the robustness of the two key findings discussed above is confirmed.* Indeed, between mid-1998 and mid-2000, all MCIs fall by about the same amount (15%) and then they display an upward trend, the slope of which, of course, is different, mirroring the varying importance attributed to the exchange rate.

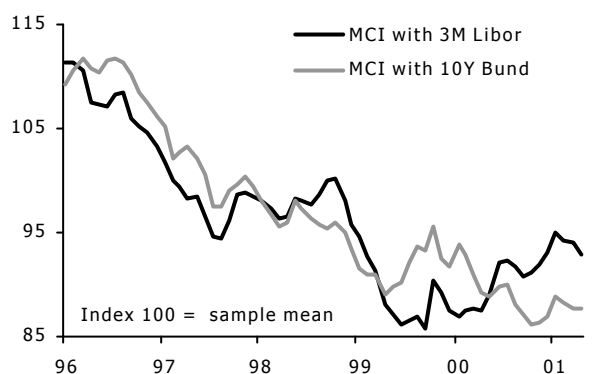
In other words, the uncertainty on the estimation of the weights, which we outlined above, bears little consequence on the interpretation of the *changes* in direction of the indicator that have taken place since the launch of the euro. The conclusions for monetary policy are quite reliable.

An MCI with the long-term interest rate

As the rationale underpinning an MCI is the assessment of the implication of financial variables on aggregate demand, it can be argued that the long-term, rather than the short-term, interest rate should be considered. The argument

holds that the interest-sensitive component of expenditure is typically concentrated in investment goods and consumer durable goods, the demand for which tends in turn to be more influenced by long-term interest rates than by short-term ones. This argument is certainly debatable: the purchase of plenty of consumer durables, houses and equipment is financed via index-link mortgages – the cost of which is related to short-term rates. Be that as it may, we see it as important to perform a sensitivity exercise also on this possible alternative way to define an MCI.

An MCI with the long-term interest rate leads to basically the same conclusions



Source: Deutsche Bank Global Markets Research.

The figure compares the MCI defined with the 3-month Eurobor interest rate with the one defined with the 10-year Bund yield (both MCIs have the same weights 8:1 and use the same nominal effective exchange rate). Although the dynamics of the two indices differed in a non-negligible way in 1999, when the rise in Bund yields anticipated the increase in short-term rates by roughly six months, the two key features still hold for the MCI with the long-term rate: 1) monetary conditions are now much easier than they were in January 1999; and 2) most of the tightening from interest-rate hikes has been undone by the depreciation of the euro. The analysis of the MCI calculated with the long-term rate confirms the robustness of our key conclusions.

A real MCI

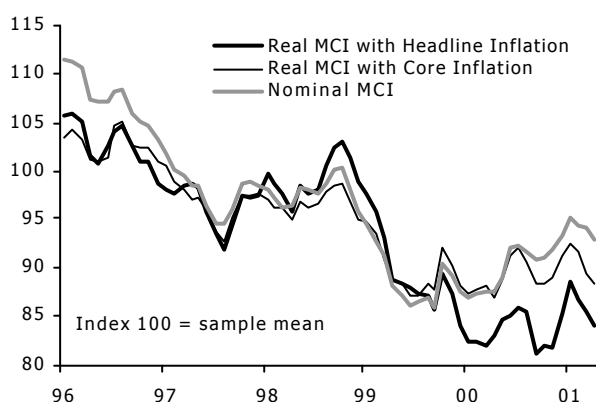
The last exercise to test the sensitivity of our conclusions refers to the analysis of a real, as opposed to nominal, MCI – i.e. an index defined (still with the same weights as the nominal one) with the real short-term interest

rate and the real effective exchange rates. For both rates, the debate is still open on the most appropriate price index to use as a deflator. For present purposes, however, it is sufficient to use the real exchange rate deflated by the CPI and to provide two alternatives for the short-term real rate: one computed on the basis of headline inflation, the other calculated on the basis of core inflation (Eurostat ex-energy ex-unprocessed food index).

The chart shows the two definitions of real MCI corresponding to these two specifications of the real short-term rate (the real exchange rate is the same for both) together with the nominal MCI. As movements in the nominal exchange rate have been the key drivers of the changes in the real exchange rate over the sample period, the difference between nominal and real MCIs practically boils down to the difference between nominal and real interest rates. In particular, during the ECB's hiking cycle that started in November 1999, the rise in both core and headline inflation led to smaller increases in real than in nominal rates.

For this reason, the real MCI has eased even more than the nominal one since the inception of EMU and the depreciation of the euro has offset even a larger part of the tightening of monetary conditions stemming from the interest rate hikes. Indeed, for the real MCI, the two key conclusions of the analysis are even stronger than for the nominal MCI.

Analysis of a real MCI makes conclusions even stronger



Source: Deutsche Bank Global Markets Research.

APPENDIX 4 FORMAL TRANSPARENCY

This appendix shows the 15 individual items that compose the overall score on formal transparency, as presented in Table 3.1 in Chapter III. The numbers presented in the main text are the simple sum minus the last two items (the publication of minutes and votes of members of the decision-making body). These items are excluded on grounds that the particular structure of the ECB raises delicate issues that merit a longer excursus. The scores are assigned on the basis of OECD (2001). A related exercise was conducted by de Haan and Eijffinger (2000).

	Euro-system	Federal Reserve	Bank of Japan	Bank of Canada	Bank of England	Bundesbank
Objective						
Ultimate goal	2	1	2	2	2	2
Quantification	1	0	0	2	2	0
Strategy						
Announcement of strategy	1	0	0	2	2	2
Announcement of intermediate target	0	0	0	0	2	2
Announcement of indicators	2	1	0	0	0	0
Publication of data/forecasts						
Macro model used	1	2	0	2	2	2
Data on targets	2	1	0	0	2	2
Inflation forecast	1	2	0	2	2	0
Communication strategy						
Parliamentary hearings	2	2	2	2	2	0
Frequency of reports	2	2	2	1	1	2
Press conferences	2	0	2	0	2	1
Publication of press releases	2	2	2	2	1	0
Statement of future moves	1	1	0	0	0	0
Publication of minutes	0	1	2	0	2	0
Publication of indiv. votes	0	1	2	0	2	0
Total	19	16	14	15	24	13
Sub Total (1-13)	19	14	10	15	20	13