1. MACROECONOMIC DEVELOPMENTS IN THE EURO AREA
Summary

Following three years of weak growth, the euro area economy is now recovering. After turning the corner in the summer of 2003, the economy strengthened during the first half of 2004, growing close to potential. Growth of a similar magnitude is expected to continue during the remainder of this year and into 2005. While exports have led the way, an increase in domestic demand will be crucial to sustain and increase the momentum of the recovery.

There is little evidence to support the argument that the weak domestic demand in recent years can be attributed to macroeconomic policies. The monetary conditions remained accommodative as was reflected in the historically low short and long-term interest rates and fiscal policy was marked by the cushioning impact of the automatic stabilisers. Thereby the policy-mix provided a sound macro-economic environment conducive to a resumption of domestic demand.

Belated and sluggish recovery puts the spotlight on the area’s economic resilience. From a global perspective, the rebound of the EU economy took place belatedly and sluggishly. In comparison to other industrial countries, it takes more time in the euro area before potential GDP is reached. This has prompted queries into the euro area’s economic resilience and more specifically into whether the euro area is more sensitive to adverse economic shocks or whether its economic structures are less favourable to economic resurgence.

Activity is little affected by adverse economic news. In this context, the question arises as to whether events that hit the news headlines, such as the euro’s appreciation and mounting oil prices, may have dipped economic activity in the euro area. The analysis conducted on this point shows that though they have impacted on economic confidence indicators, their effect on industrial production was short-lived and not particularly deep. This finding is in line with comparable events since the start of EMU. Economic shocks have been harmful if they unveiled underlying economic imbalances. In this context, the strong growth in world trade in the late 1990s seems to have spurred the euro area’s reliance on external demand. This dependency has not been worked out during the growth slowdown and implies a risk for the economic rebound, particularly in view of the high oil price, which may reduce the strength of world trade and therewith the demand for euro-area exports.

But structural rigidities may be at the origin of sluggish adjustment. Rather, it would appear that the existence of structural rigidities can help to explain the late and sluggish cyclical adjustment in the euro area. Model simulations suggest that structural rigidities mainly impact on investment activity. This implies that the pace of the return to potential output will be crucially determined by how much rigidities weigh on investment once the cyclical impact of a lack of demand and financial constraints that held back investment growth is worn out. Wage rigidities and imperfect competition, in particular in the service economy, feature high when it comes to understand sticky prices in the euro area. Relative prices do not adjust quickly in the euro area, implying the need for more costly quantity adjustments in the form of scaling down production and employment. It can also not be excluded that the lack of resolve in addressing budgetary consolidation, structural reforms and pension reforms have raised uncertainty and thereby adversely affected consumer confidence and spending. Forceful resolution of these outstanding policy issues is liable to support consumption during the upswing. While rigidities help to cushion the effects of economic shocks, they do so at the expense of slowing the recovery. For example, while employment has been resilient in the slowdown, to the extent that it was due to labour hoarding, the corollary is that job creation may turn out more muted in the current upswing.

Countries with the strongest growth in the euro area benefited from strong domestic demand whereas growth in the laggards was mainly driven by external demand. Those countries which performed well in previous upturns have not grown strongly in the current upswing. Performance in the latest upswing appears to be more dependent upon performance during the previous trough, with some countries – notably the Netherlands and Portugal still experiencing restricted growth as a consequence of previous overheating. Inflation differences are broadly in line with growth differences. Low inflation countries benefited from an improvement in price competitiveness. They recorded a stimulus from external demand but remained at the lower end of the growth spectrum. The effect of inflation on real interest rates seems to have over-compensated the improvement in price competitiveness. In high growth countries higher inflation reduced real interest rates, thereby boosted domestic demand and amplified the differences. The limited role for the first relative to the second effect in reducing growth and inflation differences during the last year reflects structural rigidities that reduce the information content of relative prices as well as the adjustment of demand and output to price signals.
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MACROECONOMIC DEVELOPMENTS IN THE EURO AREA

1. Introduction

Following three years of weak economic growth, the euro-area economy is now recovering. After turning the corner in the summer of 2003, the economy strengthened during the first half of 2004. Growth of a similar magnitude is expected to continue during the remainder of this year and into 2005. In 2004, economic perspectives brightened against the background of a favourable international economic environment while domestic demand in the euro area gained pace slowly but steadily. The contribution to growth of private consumption and investment, which are the two main components of domestic demand, however, remained too unsteady to speak of an already secured recovery of domestic demand. An improvement on both counts would be necessary to keep higher growth on a sustainable footing.

In comparison with other industrial countries, the economic recovery in the euro area was sluggish and late starting. This chapter elaborates on possible reasons for the lack of dynamism with the focus being on two main avenues. First, the euro-area economy is often considered to lack resilience in the face of adverse economic shocks, in the sense that unforeseen events have a severe impact on economic activity, pushing the pace of economic growth below potential output growth and delaying economic recovery. The second avenue looks at the role of structural rigidities. Rigidities could delay the rebound, leaving growth below potential for a longer time than in flexible economic areas.

Both strands of explanations relate to the concept of economic resilience, which has two different connotations. It can be understood as the short-fall in growth caused by adverse economic shocks. A second application of resilience denotes the speed of recovery from past shocks. Apparently, the role of structural rigidities differs strongly in both perspectives. Rigidities could delay and cushion the impact of temporary adverse shocks. But if shocks require structural adjustment, they reduce the pace of recovery.

Section 2 presents a brief review of economic developments in the current year, main developments in macroeconomic policy and presents the evidence on why the rebound in the euro area has been perceived as being sluggish and overdue. The exposure of the euro area to adverse economic shocks is analysed in Section 3. Section 4 deals with the forces that shape recovery. It starts by showing the impact of rigidities on economic recovery by means of macroeconomic simulations and then deals with explanations for four structural puzzles that became apparent during the last slowdown. Section 5 elaborates on intra-area differences among Member States, trying to identify country-specific factors and the effectiveness of adjustment mechanisms behind differences in the pace of recovery.

2. Recent economic developments

2.1 Growth pick-up since autumn 2003

Summer 2003 witnessed a turnaround in economic activity in the euro area. After no growth in the first half of 2003, real GDP growth picked up in the second half of the year and firmed in the first half of 2004. The acceleration in the annual rate of growth from 0.6 per cent in 2003 to 2.1 per cent in 2004, however, overestimates the underlying dynamics because of statistical and calendar effects.1 While the period of the growth slowdown has been overcome, entry into a high-growth setting is still pending.

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1 About 0.3 percentage point of the acceleration is due to a base effect, which arrives mechanically from the acceleration of growth in the course of 2003. A further estimated 0.3 percentage point is added by a calendar effect because there were more working days in 2004 than in 2003 (leap year, more holidays on week-ends).
Although actual GDP developments since summer 2003 surprised to the upside, expectations remain prudent as regards the area’s capability to initiate a strong recovery and a quick return to potential GDP. The notion of a particular sluggish recovery in the euro area rests on the observation that growth has proven so far to be stronger in other economic entities than in the euro area. In addition to the comparison of proper GDP growth rates in the euro area and elsewhere, this view finds some support from the development of output gaps in different countries over the next years as projected by international organisations. Despite the uncertainty surrounding the calculation of output gaps, this concept is seen as superior to the comparison of actual growth rates because differences in rates of potential output growth are explicitly corrected for. Estimates suggest that these differences are quite substantial between for instance the USA and the euro area. Taking Commission calculations, potential output growth in the USA has been close to 3 per cent on average 2001-2005 compared to around 2 per cent for the euro area.

According to the European Commission autumn 2004 forecast, the euro-area output gap is minus 1.2 per cent of potential GDP in 2004 and will gradually close to a negative 1.0 per cent in 2006. Projections from IMF and OECD also point to a rate of GDP growth in the euro area over the next year that hardly exceeds potential GDP growth, meaning that the output gap would only marginally close in 2005. While the Commission forecast is more recent than the OECD projections, which were published in early summer this year, the latter ones are used for the cross-country comparison in Table 1. The reason is simply that the OECD calculates output gaps for more countries than the Commission does, which allows a larger panel for international comparisons. The use of different methods in both institutions mainly affects the level of the output gap, yielding a very similar profile over time.

In comparison to its peers, the euro area is projected to witness the latest and slowest recovery. The OECD predicted the euro-area output gap to start closing only in 2005. Table 1 shows that it will have a considerably larger negative output gap than any of the other countries in that year. The speed with which the output gap is predicted to change from 2004 to 2005 in the euro area is also rather modest compared to the speed with which the output gap in for example Japan, Norway and the USA is calculated to close in the first year after the trough. It is, however, about the same pace as in Canada, Switzerland and the UK.

Graph 3 suggests that the current projections of a slow closing of the output gap are in line with the experience in the past. In the 1980s and 1990s, the output gap was closed only in year 5 after the trough. This was true for the euro-area aggregate as well as for the UK. Of the
### Table 1: Cyclical developments in industrial countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Previous output gap peak (2000 unless indicated)</th>
<th>Recent trough of the output gap</th>
<th>Expected output gap in 2005</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Magnitude</td>
<td>Time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>2.2 (1999)</td>
<td>0.6</td>
<td>2004</td>
<td>0.3</td>
</tr>
<tr>
<td>Canada</td>
<td>2.3</td>
<td>-0.3</td>
<td>2004</td>
<td>0.0</td>
</tr>
<tr>
<td>Denmark</td>
<td>2.2</td>
<td>-1.4</td>
<td>2004</td>
<td>-0.9</td>
</tr>
<tr>
<td>Iceland</td>
<td>4.1</td>
<td>0.1</td>
<td>2002</td>
<td>1.1</td>
</tr>
<tr>
<td>Japan</td>
<td>-1.0</td>
<td>-3.5</td>
<td>2002</td>
<td>1.5</td>
</tr>
<tr>
<td>New Zealand</td>
<td>1.3 (2002)</td>
<td>0.5</td>
<td>2001</td>
<td>0.0</td>
</tr>
<tr>
<td>Norway</td>
<td>2.9 (1998)</td>
<td>-1.5</td>
<td>2003</td>
<td>0.7</td>
</tr>
<tr>
<td>Sweden</td>
<td>2.3</td>
<td>-1.3</td>
<td>2003</td>
<td>0.1</td>
</tr>
<tr>
<td>Switzerland</td>
<td>1.8</td>
<td>-2.1</td>
<td>2003</td>
<td>-0.8</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>1.3</td>
<td>-0.7</td>
<td>2003</td>
<td>0.2</td>
</tr>
<tr>
<td>USA</td>
<td>2.4 (1999)</td>
<td>-2.0</td>
<td>2002 and 2003</td>
<td>0.2</td>
</tr>
<tr>
<td>Euro area</td>
<td>1.1</td>
<td>-2.3</td>
<td>2004</td>
<td>-1.8</td>
</tr>
</tbody>
</table>

Source: OECD.

Two rebounds witnessed in the USA, one was faster, namely the 1982-85 recovery. According to Commission estimates, the US output gap will close even faster between 2002/03 to 2005 than in the early 1980s.

In complement to the analysis of how the output gap is expected to close, namely over the longer term of 4 to 6 years, it is informative to compare the speed of the recovery in its early stage, for instance in the first two years after its trough in the output gap. Experience in industrialised countries since the mid-1980s suggests that the speed of recovery, for instance measured by the change of the output gap in the first two years after the trough, is generally loosely related to the magnitude of the trough. Looking at the early phases of the rebound after the recession of the early 1990s and the Mexico crisis of 1995/96, it appears that the output gap closed faster in non-euro area OECD countries than in euro-area Member States even if the difference in the depth of the output gap is controlled for. However, only few observations are available and differences between both groups of countries are not statistically significant.

In comparison with the historical precedents, it seems that the rapid speed of the current recovery in the USA is the unusual event rather than the slower speed in the euro area. To some extent, the considerable easing of monetary and fiscal policy in the USA is a factor behind its quick economic recovery. Countries with close trade, financial and exchange rate ties such as the UK or Canada may have benefited from this, therefore experiencing a faster rebound now than in the past. On the other hand, the strongly counter-cyclical macroeconomic policy in the USA might have prevented full adjustment to the economic imbalances that have built up during the previous boom period. US savings have been lagging behind investments in the USA for more than a decade now with the consequence of a large current account deficit.

#### 2.2 The anatomy of the early rebound

Unsteady development of demand components. The drivers of growth were variable in the early phase of the rebound and in particular the contribution of domestic demand was too unsteady to speak of a secured recovery. Net exports were the main contributor to growth in the first quarter of the rebound. Investment and inventories fulfilled this role in the subsequent quarter and private consumption contributed strongly in the third quarter of the rebound. While the sequence of demand forces is as expected, the speed of their alternation is not, causing some difficulties in assessing the robustness of the rebound. The quick spill-over of the external impulse to domestic demand is a reassuring sign, because it reduces the recovery’s reliance on external demand. A strengthening of private consumption had long been anticipated. A worrying development, however, is that each factor’s contribution was relatively small and is therefore unlikely to trigger strong knock-on effects on the other demand components.

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2. The slightly longer duration of a negative output gap in the USA in 1991-97 seen in Graph 3 is not evident in OECD figures, which indicate a closing of the gap one year earlier.

3. Countries that aim at stabilising their exchange rate towards the US dollar not only benefit from an indirect depreciation relative to for instance the euro, but also from the downward pressure on interest rates initiated by the low US interest rate.
Graph 4 reveals an atypical V-shape in the contribution of net exports to growth in the current rebound. The contribution of net exports was smoother and positive throughout the early phase in previous rebounds with the notable exception of the aborted recovery of 2002. Since the rebound in 2003 took place against a brightening of the global economic outlook, with continuously high or accelerating economic growth in most industrial countries, including Japan, the negative contribution from external demand in the final quarter of 2003 is surprising. It may have been caused by changes in price competitiveness due to the appreciation of the euro witnessed at that time.

A relatively strong contribution from domestic demand to growth in the euro area is the mirror image of the early weakening of the contribution from external demand (see Graph 5). The weakening of domestic demand after a first initial peak is a pattern that seems to be common in recoveries in the euro area. The most reasonable explanation points to the impact of pent-up demand as a temporary driving force at the early stage of recovery. A further strengthening of domestic demand, which would be crucial for both the vigour and sustainability of the recovery, is not yet visible in GDP data.

Employment and prices still reflect signs of economic weakness. Employment growth came to a standstill from the second half of 2002 onwards as a lagged consequence of the prolonged economic slowdown 2001-2003. Though the previous vigour in job creation was lost, the overall development is in sharp contrast with past experience. For example, although the magnitude of the output gap was similar in 1993 and 2004, employment growth in the early 1990s was markedly negative in the year before, at and after the trough of the output gap (see Graph 6). The rate of unemployment also increased more modestly in the recent slowdown, i.e. from 8 per cent in 2001 to 8.9 per cent in 2004 compared to an increase from 7.8 to 10.8 per cent 10 years before. Section 4.2 takes a closer look at the factors behind the resilience in labour market performance during the slowdown and the potential implications of past resilience for the pace of recovery.

Note: The year with the largest negative output gap is year 0 in the graph. Commission autumn 2004 forecast for 2004-06. Source: Commission services.
Inflation remained close to, but above, the 2 per cent margin. This is higher than many expected given the pronounced period of weak growth and the downward pressure exerted by the appreciation of the euro. Increasing oil prices strongly determined the pattern of headline inflation in the course of the year, though they caused little concern as regards potential second-round effects, probably because the impact of the previous oil price hike in 2000 remained limited to energy prices and petered out smoothly. Furthermore, increases in regulated prices and indirect taxes in some countries shifted the rate of consumer price inflation upward. Wage growth seems to have eased in 2004 and especially against the background of the expected cyclical pick-up in labour productivity should not weigh on inflation prospects in the short-term. Inflation is expected to come down to below 2 per cent in the course of 2005 only.

In a strict sense, price stability as defined by the ECB as an annual rate of consumer price inflation in the euro area of below 2 per cent did therefore not prevail. In the absence of strong apparent upside risks to the inflation outlook throughout the slow growth period, the central question is why the apparent downward pressures had no stronger impact. The weakening of demand and the decline in import price inflation due to the euro appreciation were expected to push consumer price inflation below 2 per cent. This did not materialise, questioning the role of lower inflation in helping cyclical adjustment. The analysis of price stickiness in Section 4.5 sheds some further light on this issue.

Macroeconomic policy stance remained accommodative. No tangible adjustment of key macroeconomic policy parameters took place between summer 2003 and summer 2004. This is most visible for monetary policy since the ECB’s last interest rate cut dates from 6 June 2003, when policy rates were reduced by 0.5 percentage point, yielding a rate of 2.0 per cent of the minimum bid rate in the main refinancing operation. The change in the cyclically-adjusted primary balance, which is considered the best available tool to measure the stance of fiscal policy, was marginal in both 2003 and 2004 for the euro-area aggregate. Although the direction changed from 2003 to 2004, it, nevertheless, indicates a neutral policy stance.

Steadiness in key policy parameters does not indicate policy inactivity. Discussions on fiscal policy were vivid. This was in particular so in Autumn 2003 when tensions rose regarding the application of the EU fiscal framework as the Council decided not to adopt a Commission recommendation to France and Germany on new measures to reduce the budget deficit and remedy the situation of an excessive deficit. The ECB was faced with demands to cut interest rates in early 2004 when the euro exchange rate climbed to close to 1.30 USD/EUR and many foreign exchange market observers feared a continuous firming. Policy easing did not take place.

The monetary stance is assessed as supportive to economic activity in 2004. Monetary indicators like M3 growth suggest the availability of sufficient liquidity in the financial system and nominal interest rates are on a low level, in absolute terms and relative to the Taylor rate (see Graph 9). Real short-term and long-term interest rates remained close to their historic lows. With the real interest rate remaining relatively stable for more than a year now, movements of monetary conditions as measured by the MCI were only caused by changes of the euro exchange rate. Since the euro exchange rate has only a small weight in the MCI, reflecting the relative importance of real interest rates and real effective exchange rates for economic activity, the euro appreciation caused only a minor tightening of the MCI, which has become in consequence more favourable to domestic relative to external demand.

For a detailed account of the discussion, see European Commission (2004).
While the ECB kept policy rates on hold for more than a year, forward-looking financial market prices reflected signs of speculation on possible changes in the monetary stance at several occasions. One incident was the expectation of a further interest rate cut in early 2004 motivated by the feared negative consequences the appreciation of the euro could have on the economic recovery and possible negative effects on economic growth caused by geopolitical uncertainties. The first speculation that the ECB might tighten the monetary stance emerged when rising oil prices lifted consumer price inflation in early summer and economic indicators signalled higher than expected growth in the euro area. Expectations among financial market participants of an increase in euro-area interest rates were muted in summer. The rise in oil prices was interpreted as being more disinflationary than inflationary, given its taxing effects on growth.

The major story behind market perceptions of future interest rate decisions relates to the question of when and how quickly central banks have to withdraw their accommodative stance. The concept of a neutral interest rate, which should prevail in neutral cyclical conditions, while theoretically appealing, is difficult to implement in practice. Calculations on the basis of the Taylor rule are often used as a proxy, indicating that euro-area interest rates were low relative to the Taylor rule. Muted interest rate expectations at a time when the US central bank started tightening its monetary policy stance could be interpreted as market participants’ assessment that the gap between actual and neutral interest rates in the euro area would not represent a risk to price stability at the current stage of the economic recovery. In contrast, the gap was considered to be much wider in the USA, requiring the US central bank to remove some policy stimulus at an early stage.

Looking at the developments of the fiscal stance in the euro area, Graph 10 plots the change in the cyclically-adjusted primary balance (CAPB) against the output gap. The SGP favours a neutral budgetary stance for countries which have achieved a medium-term position of ‘close-to-balance or in surplus’, which would be visible in a movement along the horizontal axis. Countries that have not yet achieved the medium-term target of the SGP should aim for a positive change in the CAPB, indicating a restrictive fiscal stance. Small changes in the CAPB such as those seen in 2003, 2004 and projected for 2005 are considered as indicating a broadly neutral fiscal stance.5

Table 2 summarises some of the euro area’s key macroeconomic policy parameters, illustrating that long-term interest rates have remained on a low level. The widening budget deficit caused public debt to exceed 71 per cent of GDP, which is far above the 60 per cent Maastricht criterion and too high in view of the fiscal burden of ageing populations. Stepping up the pace of budgetary consolidation would be adequate if economic activity recovers as expected.

5 See 5.3 for a comparison of Member States fiscal stances and their relationship with the output gap.
Box 1: The reason for slow cyclical recoveries – A look at the recent academic literature

The academic literature is generally relatively silent on the question of why economic recoveries materialise at different speeds. In the past, this kind of discussion focused on differences in the macroeconomic policy stance. Some recent contributions have highlighted the importance of supply side issues.

Hausmann et al. (2004) analyse the determinants of growth accelerations, which they define as an increase in per capita GDP growth of at least 2 percentage points. They also require the post-acceleration growth rate to be at least 3.5 per cent per year sustained over the next 8 years. Based on these criteria, they identified around 80 episodes since the 1950s. While most of the observations stem from former developing countries and the number of episodes declines from the 1970s onwards, EU countries also witnessed growth accelerations in the past two decades (United Kingdom 1982, Spain 1984, Ireland 1985, Portugal 1985, and Finland 1992). The comparison of macroeconomic trends in these episodes suggests that increases in investment, trade and real exchange rate depreciations seem to be correlated with growth accelerations. The detailed empirical analysis of these episodes, however, revealed that most of them were not related to expected exogenous determinants. So the authors find financial liberalisation and positive external shocks to have a temporary impact. The estimation also suggests that despite the finding that the variable capturing economic reform is rarely significant, economic reform has a statistically meaningful impact, at least on the probability of experiencing a sustained acceleration in growth.

Applying the concepts from growth theory on the analysis of the business cycle, Prescott (2002) attributes the most important role for explaining differences in economic prosperity to productivity. Crucial policy determinants are trade integration, an efficient financial system and competition among firms. As regards labour utilisation, he considers the tax structure to have an important distorting impact, which could account for the difference in labour supply in the USA and continental Europe. Bergoeing et al. (2004) present evidence in a cross-country setting that regulation is negatively related to the economy’s ability to recover from shocks. They argue that economic recovery requires the re-allocation of resources, i.e. from declining to growing industries, and regulation makes this adjustment process costly.

Some evidence on the impact of market rigidities on economic performance has been derived from incorporating rigidities into macroeconomic models and comparing the performance with a more flexible model environment. For example, using the IMF-GEM model Bayoumi et al. (2004) show that differences in parameters that capture the impact of competition can account for half of the difference in per capita GDP between the USA and the euro area. Reforms that raise the level of competition in the euro area to the US level would lead, in the model, to an increase of GDP by more than 12 per cent in the euro area. They would also improve price flexibility and therewith allow for a more active role for monetary policy in stabilising output. Following a similar approach, Drew et al. (2004) compare model outcomes if rigidities on different markets are introduced. Structural rigidities on product and labour markets reduce the impact of negative demand shocks. However, output and unemployment need longer to return to their equilibrium levels in the simulations shown, by about 2 to 3 years.

Gali et al. (2003) approach the slack in an economy by constructing an inefficiency gap, which is the inverted sum of the aggregate price mark-up and the aggregate wage mark-up in an economy. This indicator is highly pro-cyclical in the euro-area, driven by counter-cyclical behaviour of the wage mark up, defined as the difference between the real wage and the disutility of work. This could be interpreted as a desired adjustment among firms and workers in an environment with flexible prices and wages. However, the authors’ alternative and preferred interpretation is that the change in the mark-up is driven by wage rigidities.

Some economists in investment banks conjectured that the slack in the euro-area economy could be smaller than estimated because the rate of potential growth could have become lower over time. JP Morgan (2004) argues that some of the peculiarities observed in the recent slowdown, namely the slow pass-through of the euro appreciation to prices, the limited decline in capacity utilisation and the small increase in unemployment, would be less odd, if the rate potential growth and therewith the (negative) output gap were smaller than thought. A reason could be that economic performance in the 1990s was spurred by some favourable supply shocks, i.e. low energy and commodity prices, trade and financial liberalisation, productivity in ICT. According to Goldman Sachs (2004), these shocks influence the cycle in which they occur, but not necessarily the next one.

Table 2: Key macroeconomic policy parameters, euro area

<table>
<thead>
<tr>
<th></th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short-term interest rate (3 months)</td>
<td>2.3</td>
<td>2.1</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Long-term interest rate (10 years)</td>
<td>4.1</td>
<td>4.26</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Real effective exchange rate (GDP deflator, 1999 = 100)</td>
<td>104.0</td>
<td>106.8</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Budget deficit, % of GDP</td>
<td>-2.7</td>
<td>-2.9</td>
<td>-2.5</td>
<td>-2.5</td>
</tr>
<tr>
<td>Cyclically-adjusted deficit, % of GDP</td>
<td>-2.2</td>
<td>-2.5</td>
<td>-2.1</td>
<td>-2.2</td>
</tr>
<tr>
<td>Cyclically-adjusted primary deficit, % of GDP</td>
<td>1.3</td>
<td>0.9</td>
<td>1.2</td>
<td>1.1</td>
</tr>
<tr>
<td>Public debt, % of GDP</td>
<td>70.7</td>
<td>71.1</td>
<td>71.1</td>
<td>70.9</td>
</tr>
</tbody>
</table>

Note: 2004 figures denote the first semester for interest and exchange rates, REER vs 34 industrial countries, 2004 to 2006 budgetary data based on Commission Autumn 2004 forecast.

Source: Commission services.
3. The impact of adverse economic shocks

This and the subsequent section cast some light on the possible reasons for the sluggish recovery in the euro area with the focus on two, not mutually exclusive strands of explanations. The first set of explanations is built on the perception of the euro area being particularly vulnerable to adverse economic shocks. The pronounced weakness in economic growth could be due to the impact of the shocks that hit the economy in 2001-03. This section asks whether the euro area is particular sensitive to adverse economic shocks and if so why. In this context, the effects of adverse economic news on households’ and investors’ sentiment are often quoted as being of particular importance. A second line of reasoning focuses on the existence of structural rigidities in the euro-area economy that could delay recovery and inhibit the return to potential output growth. This second approach is taken up in Section 4.

The occurrence of adverse economic shocks is widely mentioned as a reason for the brisk interruption of the strong pace of economic growth that prevailed in the late 1990s up to 2000. The shocks that were highlighted in previous issues of the Review concerned (i) the oil price hike in 2000, (ii) the bursting of the ICT investment bubble and (iii) the slump in world trade. They all have in common that they acted on a global scale, i.e. dented growth not only in the euro area but also in many other economic areas. The observation that growth picked up later in the euro area than elsewhere suggests that the euro area was particularly vulnerable to these shocks.

However, this perspective could give a biased view on the resilience of the euro area. The reason is that it highlights the shocks that had a severe impact but leaves out all shocks from which the impact did not materialise. For instance, three special incidents in the current year were widely thought to present a risk to economic recovery. These are the appreciation of the euro exchange rate, the hike in commodity and especially oil prices and the terrorist attack in Madrid. Though they impacted on economic confidence indicators, their effect on the recovery has been muted.

3.1 The impact of adverse economic news on confidence and economic activity: The early years of EMU

This section looks at the adverse economic shocks in the form of an event study, i.e. it identifies in a first step unexpected events that were considered to be potentially harmful for economic activity and subsequently tries to establish their relationship with economic sentiment and short-term hard economic indicators. The intention is to get insights into the kind of shocks the euro area had been exposed and the severity of their impact. Moreover, the research design permits to establish some preliminary evidence of the importance of confidence effects, i.e. the significance of economic shocks via their impact on economic confidence in addition to any materially justified impact.

A later step relates the results of the event study to those economic shocks that used to be considered of particular relevance for explaining the euro area’s dismal growth performance in 2001-03. Somewhat pre-empting the conclusions, adverse economic events have been frequent in the euro area. However, their effect via deterioration in economic confidence is transitory unless they unveil some underlying economic imbalances.

Since 1998 the euro area has been hit every year on average by two adverse economic events, which are defined here as unexpected events that are presumed to be potentially harmful to economic activity. Admittedly, any method of identifying the occurrence and timing of these events encompasses a discretionary element and a degree of arbitrariness. The preferred strategy in this exercise consisted in matching all major changes in the Commission’s industrial confidence indicator to a chronology of market events.

It turned out that each fall in the industrial confidence indicator of 2 or more points was accompanied by a major news event. Table 3 provides a list of events and Graph 11 marks the timing of changes in the industrial confidence indicator. There were, however, a number of events that would a priori be judged as potentially severe, and that found no reflection in the change of the

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6 An alternative strategy used consisted in deriving the timing of events from an autoregression of production expectations in industry. An event was defined as any observation when the residual of this estimate was unusually low. Both methods yield a high degree of, but no perfect, overlap. Moreover, while the alternative approach is more sophisticated from a quantitative point of view, some of the observations are difficult to reconcile with “economic news”. As a consistency test, the same exercise was repeated for the Reuter’s PMI, yielding comparable results.
Table 3: Adverse economic shocks

<table>
<thead>
<tr>
<th>Time</th>
<th>Change in industrial confidence</th>
<th>Negative growth in industrial production, mom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Russia, LTMC August to October 1998</td>
<td>-2/-2/-4</td>
<td>October to December</td>
</tr>
<tr>
<td>NATO air strikes on Serbia March 1999</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Oil price exceeded 30 USD March 2000</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Stock market collapse April 2000</td>
<td>-3</td>
<td>June</td>
</tr>
<tr>
<td>Downward revision of already slow GDP growth in USA December 2000</td>
<td>-2</td>
<td>January</td>
</tr>
<tr>
<td>Turkish financial crisis, foot and mouth disease February 2001</td>
<td>-3</td>
<td></td>
</tr>
<tr>
<td>Indication that the global economy was in recession April/Mai 2001</td>
<td>-2/-2</td>
<td>March and April</td>
</tr>
<tr>
<td>Enron scandal August 2001</td>
<td>-2</td>
<td></td>
</tr>
<tr>
<td>Terrorist strikes in USA September/October 2001</td>
<td>-4/-2</td>
<td>September to December</td>
</tr>
<tr>
<td>Afghanistan conflict, GDP release confirms Germany to be in recession November 2001</td>
<td>-2</td>
<td>December</td>
</tr>
<tr>
<td>Enron collapse, financial crisis in Argentina December 2001</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>World com scandal July 2002</td>
<td>-2</td>
<td>July</td>
</tr>
<tr>
<td>Floods in D, E, F, A August 2002</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Iraq conflict March 2003</td>
<td>-2</td>
<td>March and May</td>
</tr>
<tr>
<td>Strong increase in US bond rates July 2003</td>
<td>-2</td>
<td>August and September</td>
</tr>
<tr>
<td>Euro exceeded 1.20 December 2003</td>
<td>-2</td>
<td>January</td>
</tr>
<tr>
<td>Terrorist strike in Madrid March 2004</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Oil price exceeded 40 USD May 2004</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

Shocks are related to 16 out of 28 observations for negative monthly investment growth

Source: Commission services, BBC, Macro-Dev.

industrial confidence indicator. Notably the military conflict in Serbia in spring 1999, the increase of the oil price above 30 USD in February 2000 and the floods in some euro-area Member States in summer 2002 were not followed by a drop in industrial confidence.

Over the period 1998 to 2003, the euro area was exposed to 12 adverse economic events, measured as a decline in the industrial confidence of at least 2 points. The average of 2 shocks per year also continued in 2004, with both the terrorist strike in Madrid on 11 March and the increase in oil prices qualifying as economically meaningful events. The financial crises in South-East Asia and Russia in 1998 as well as 11 September 2001 initiated the most marked drop in industrial confidence. With hindsight, they can be considered the most severe economic shocks in the panel. It is, however, remarkable that industrial confidence had already deteriorated before 11 September 2001, which is consistent with the consensus among economists that the terrorist strike was not the cause of economic slowdown.

Interestingly, the direction of changes in industrial confidence used to be clustered, but this pattern has dissipated in the recent past. For instance, increases were prevalent in 1999 and declines in 1998 and from autumn 2000 to autumn 2001. A deviation from this pattern is visible for the time since summer 2002, when periods of plusses and minuses changed in small intervals. All the negative changes that were equal to or exceeded 2 points in this time can be traced back to worrying economic news. This could suggest that either economic shocks have become more frequent or that agents have become more sensitive to adverse economic news, i.e. responding more strongly in their assessment in surveys.

The right column in Table 3 indicates that industrial production growth became negative whenever industrial confidence fell by 2 or more points either in the same or the subsequent month. Of the 26 observations of negative monthly industrial growth that were recorded between 1998 and 2004, 16 occurred at or shortly after an economic shock. This result is not a major surprise.

7 Note that a fall in the Commission’s industrial confidence indicator of similar magnitude was only recorded once since the start of the series in 1985. This was in October 1992, following the ERM crisis (black Wednesday) that led Italy and the UK to leave the ERM.
since the confidence indicator is calculated from answers to, amongst others, questions regarding actual and expected industrial production. Nevertheless, it should be noted that econometric estimates suggest that these economic events have some predictive power for industrial production.

Although significant, the impact of these adverse economic events on industrial production seems to be rather short-lived. This can be shown by including them into an empirical estimate of monthly industrial production growth. Dummy variables signifying the timing and severity of bad economic news turn out significant in auto-regressions of industrial production, but only with a lag of 1 and 2 months. Higher-order lags of the shock variable are not significant and the estimated coefficients of lagged investment growth imply that shocks fade out quite quickly. According to the empirical estimates, industrial production falls for two months when a shock that causes a decline in industrial confidence by 2 or more points occurs. Afterwards, growth in industrial production oscillates around zero, and although industrial production will remain on a lower level, Graph 12 suggests that the impact of the shock is practically invisible in growth rates after 6 months.

The timing of deteriorations in consumer confidence is only weakly correlated to downward changes in industrial confidence. The same method of relating large monthly changes in the consumer confidence indicator with external events does not reveal a consistent pattern. Only three out of five observations occurred in times when the change in industrial confidence indicated an adverse economic event. It is, however, remarkable that the decline in consumer confidence is often spread over 2 or even more months. The duration of the deterioration in consumer confidence as well as its occurrence after some of the major economic shocks suggests that consumer confidence depends more on the state of the general economic situation than on events that could trigger any deterioration in the economic outlook. Each observation of a severe deterioration in consumer confidence coincided with weak growth in private consumption in the national accounts.

3.2 Shocks and economic imbalances

There is a discrepancy between the adverse economic events referred to above and the economic shocks that are held responsible for the dismal economic performance in the euro area. Moreover, the short term impact of adverse economic events on industrial production, in combination with the imperfect correlation between the subsequent impact on consumer confidence and households’ spending suggests shocks to be relatively short-lived. The impact of the oil price hike of 2000, the bursting of the ICT bubble and the slump in world trade are, however, perceived to have had a lasting impact on economic activity,8 with all three shocks having a long-lasting impact on demand. Even if the economic disturbances can be related to adverse economic events,9 the duration of their impact seems to be a major difference between both concepts.

It is very likely that the period of strong growth in the euro area was not cut off by the occurrence of economic shocks per se, but by underlying economic imbalances that surfaced at the time of, or because of, these shocks.

Graph 12: The impact of shocks on industrial production, growth rate

Note: (1) includes all values of the change in industrial confidence, irrespective of sign and magnitude. (2) includes a dummy equal to 1 whenever the industrial confidence declined by 2 or more points. (3) is similar to (2) but also reflects the severity of the decline in the industrial confidence indicator.

Source: Commission services.

In terms of magnitude, a decline in industrial confidence by 2 points reduces industrial production by 0.4 to 0.8 percentage points over two months, depending on the specification of the empirical estimate. Accounting for a share of industrial production of 20 per cent in GDP, this would translate into an annual income loss of less than 0.05 per cent. Unless activity in other economic sectors is also affected by the shock, this would be too small to expect a significant deterioration in aggregate demand.

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8 For an attempt to identify the economic shocks of 2000 by means of VAR analysis, see Peersman (2003). It finds that the shocks were more pronounced in the USA than the euro area but cautions that the results are sensitive to the empirical strategy.

9 For example, the stock market collapse in 2000, when NASDAQ share prices fell by 20 per cent from March to April, heralded the end of the ICT bubble. Investment growth became negative shortly thereafter, namely in the third quarter in the USA and in the fourth quarter in the euro area, marking the beginning of a period of weak investment in both economic entities. The severity of this disturbance was probably unknown until the release of US national accounts data in late autumn 2000. Similarly, the decline in industrial confidence in December 2000 might not just have been triggered by evidence of weakening economic activity in the USA, it also portended the fall in world trade growth that materialised in 2001.
With hindsight, all three economic disturbances that had been identified as having triggered the economic slowdown in the euro area can be considered a correction of past imbalances. Technical progress in the ICT sector, globalisation of markets and low commodity prices in times of buoyant growth, might have led to distorted market signals and an undue expansion of production structures in specific sectors.

The case is probably most obvious for investment. Declining capital costs, in particular through interest rate convergence in some Member States in the run-up to EMU, and buoyant stock prices had eased financing conditions for investment. Capital raised on stock markets increased from just 1 per cent of GDP in 1997 to almost 5 per cent in 2000. Non-financial corporations accumulated liabilities and holdings of financial assets from 1995 to 2000 (see Graph 13).

This trend of rising financial activity, however, stopped after 2000. A high level of corporate debt has been identified as a reason for slow investment growth in the downturn. Financial institutions seem to have become prudent in their lending policy, being on the one hand eager to clean their balance sheets from bad loans while trying to keep market shares in an environment of intense competition due to increasing financial integration. See Section 4.3 for more details.

While it is difficult to identify an exceptional increase in overall physical investment in the late 1990s, which could indicate over-investment in the euro area, investment in some items had been buoyant. In particular spending in ICT had been upbeat and roaring stock market prices have helped to expand activity in this sector. Although not all ICT goods produced and imported were also invested, Graph 14 shows that production in ICT hardware showed a typical boom-bust pattern. Since production in ICT goods powerfully outpaced that in manufacturing in particular in 1999 and 2000, partly to modernise ICT in view of the year 2000 problem, it is reasonable to assume that overly high capacity had been built up in this sector.

Adverse economic events in 2004 such as the appreciation of the euro exchange rate, the hike in commodity and especially oil prices and the terrorist attack in Madrid do not necessarily unveiled economic imbalances in the euro area. This assertion is probably doubtful for the euro appreciation, which brought the strong dependence of growth in the euro area to external demand to the fore. In 2003/04, the effect of the appreciation on economic activity in the euro area was cushioned by the simultaneous acceleration in global trade growth. However, the continuous reliance of growth in the euro area on external demand suggests that this structural weakness has not been worked out of the economy during the growth slowdown. In the euro-area manufacturing sector, the share of sales on non-domestic markets relative to those on domestic markets had increased rapidly (see Graph 15). Cross-border sales of capital goods rose even more strongly, suggesting that production structures had become increasingly focused on foreign markets. A further reason as to why the euro appreciation only mildly affected growth in the euro area is very likely that it corrected the previous under-valuation of the euro. This view finds support in the observation that the most frequently mentioned reasons for the preceding euro weakness were positive shocks to productivity and risk premiums in the USA. These factors can justify a temporary, but not a permanent, appreciation of the US dollar against the euro. Model analysis predicts that the exchange rate should return to its previous level over time. See, for instance, Tille et al. (2001), IMF (2004b).

10 These factors were analysed in the chapter on the euro-area economy in last year’s REVIEW.
on global markets. If previous investment decisions were based on the expectation of sustained high growth in external demand, these expectations have been disappointed since 2001.

Oil price shocks are usually considered to have caused the stagflations in the mid-1970s and early 1980s. Although some researchers have meanwhile contested this consensus view and stress the role of monetary policy in response to this shock as the actual trigger for recession,12 oil price hikes continue to raise a lot of public concern. Simulations using macro-econometric models consistently show oil price shocks to have a significant impact on economic activity, with their severity being largely dependent on the duration of the oil price hike (see Table 4). For example, simulations with the Commission’s Quest model show that the impact of a transitory increase of the oil price is quite short-lived, affecting GDP in the first year. The effect is already unwinding by year 2 and essentially no longer noticeable in year 3. When the oil price increases permanently, Quest simulations show the negative effect to be marked in the second year (see Table 4).

Table 4: The impact of a permanent increase in oil prices (USD 44 per barrel)

<table>
<thead>
<tr>
<th></th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP growth</td>
<td>-0.33</td>
<td>-0.44</td>
<td>-0.16</td>
</tr>
<tr>
<td>Consumer price inflation</td>
<td>0.21</td>
<td>0.36</td>
<td>0.05</td>
</tr>
</tbody>
</table>

Source: Commission services.

The mechanisms through which an abrupt oil price increase impacts on economic activity and the positioning of the euro area economy were described in some detail in the EU ECONOMY 2000 REVIEW and the European Commission’s QUARTERLY REPORT ON THE EURO AREA 2/2004. The latter concluded that higher oil prices represent a small but significant downward risk to economic activity.

- The still relatively weak cyclical position of the euro area could make business and consumer confidence vulnerable to further increases in oil prices.
- The oil price hike could fuel inflation, particularly if wage earners demand compensation for their loss in purchasing power. Whereas oil price increases led to higher wage growth in the 1970s and early 1980s, second-round effects could not be observed after the year 2000 oil price hike.
- A significant risk is related to the response of emerging markets and world trade to the hike in oil price because previous oil shocks have regularly been followed by a slowdown in world trade. Growth in world trade may be more sensitive to higher oil prices than in the past due to the growing importance of emerging markets such as China.

Graph 16 relates the development of the oil price with growth in world trade, showing that both moved in tandem since 1999 when oil prices are lagged by about 1 year. If temporarily lower oil prices were a major driving factor of the acceleration in growth witnessed in emerging markets in the recent past, the oil price hike could uncover economic imbalances prevalent in these countries. Given that growth in the euro-area remains vulnerable to changes in external demand, oil price induced disruptions abroad could spill-over into the economic outlook for the euro area.

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3.4 Conclusions

This section demonstrated that economic events that make headlines do not necessarily amount to severe adverse shocks.

• The euro-area has frequently been hit by adverse economic events, which could trigger a slowdown in economic activity. On average, two of these events occurred per year.

• Most of the events identified had an impact on industrial confidence and, with a delay, on industrial activity. The evidence presented suggests the effect of confidence effects on industrial production to be short-lived and not particularly deep.

• Those shocks that are held responsible for slowing growth after 2000 heralded deeper underlying economic disturbances. The euro-area’s dependency on external demand has not been worked out during the slowdown and represents an important risk for the cyclical rebound.

4. Factors shaping the return to potential growth

The hypothesis that structural factors might be an obstacle to accomplishing a faster return to potential output is strongly linked to the observation that economic recovery set in earlier and more robustly in the USA and some other Anglo-Saxon economies than in the euro area. These countries are perceived to suffer less from structural rigidities and their higher degree of economic flexibility has helped them to overcome the global growth slowdown faster than the euro area. Relative prices do not adjust quickly in the euro, implying that the need for more costly quantity adjustments in the form of scaling down production and employment.

This section reviews factors that can crucially inhibit the pace of the return to potential output. It starts with the result of macro-econometric simulations that demonstrate the role of structural rigidities in the adjustment to economic shocks (Section 4.1).13 Then, it elaborates on special developments that were observed during the 2001-03 growth slowdown and that may indicate the effect of structural rigidities. A central question is whether they indicate a slowdown in potential output growth. Such a consequence would have been built up than output gap calculations suggest.

As identified in previous issues of the EU ECONOMY REVIEW, a number of factors were unusual in the growth slowdown from 2001-2003.

• Labour markets weathered the slowdown quite well, with employment growth remaining positive and unemployment rising only modestly. An important question is whether the resilience of employment to the slowdown translates into less supportive employment growth during the upswing (Section 4.2).

• Considering the low level of interest rates, investment activity was shallow. Before the growth slowdown, it was widely assumed that vivid technical progress could spur an investment boom. Now, there are few indications that these expectations are being lived up to (Section 4.3).

• Consumption was weaker than suggested by the trend in disposable income. At the current juncture, it is unclear whether the households’ saving rate should be expected to continue its increase or whether a reversal to the lower level seen before the growth slowdown will occur. This will crucially determine the contribution of private consumption to economic growth (Section 4.4).

• Consumer price inflation fell only marginally in response to the shortfall in domestic demand. Price stickiness is considered to have prevented a larger decline in inflation, thereby depressing households’ purchasing power and preventing a more aggressive easing of monetary policy (Section 4.5).

4.1 The impact of rigidities on economic recovery: results from model simulations

Structural rigidities are theorized to dampen cyclical fluctuations. Shocks have a smaller but more durable impact while recovery is slower. Unveiling the actual impact of structural rigidities on the timing and strength of cyclical rebound is a thorny exercise because actual cyclical movements hardly follow the textbook model. Moreover, international comparisons like the one performed in Section 2.2 are sensitive to the control of the influence of other variables such as the severity of economic shocks or the stance of macroeconomic policies.

This section draws on the insights from macro-economic simulations. The procedure is quite straightforward. A macro-economic model of the euro-area was exposed to selected shocks and the impact of the shocks was compared to an alternative set-up of a more flexible economy. Differences in adjustment patterns should be telling regarding the impact of rigidities on cyclical behaviour.

13 The analysis presented in the EU ECONOMY 2002 REVIEW showed how economic structures can impact on the rate of growth in the medium to long term.
The simulations draw advantage from the fact that several mechanisms in the Commission’s Quest model allow for an explicit analysis of sluggish adjustment to shocks. For instance, the model’s investment function contains parameters for adjustment costs that reduce the sensitivity of changes in capital and therewith of output to determinants in capital costs. A parameter of price adjustment reflects sticky adjustment of output prices to input prices and changes in capacity utilisation. Taxes and bargaining power on labour markets reduce the efficiency of the labour market and some households are liquidity-constrained, i.e. have no possibility to smooth consumption over time.14

For the following experiment, the original Quest model is exposed to a representative supply as well as to a demand shock. The resulting path of GDP is then compared with a model, which was exposed to the same shocks, but where the adjustment costs parameters in the investment function are only half that of the original model. A second departure is that the parameter capturing the wage bargaining of workers is assumed to be equal to the one for the USA.

For the case of a supply shock, the most significant difference between a rigid and a flexible economy is visible in the long-term. Graph 17 shows the impact of a permanent improvement in total factor productivity of 1 percentage point, which can be read as an autonomous increase in the pace of technical progress. In the base line, GDP increases strongly in year 1 and converges afterwards slowly to the new long-term equilibrium. In the flexible variant of the model, the long-term GDP level is about 0.4 per cent higher, which also implies a quicker adjustment in the first year.15

The impact of a temporary decline in the interest rate as a representative demand shock is considerably stronger in the flexible economy than in the base-line economy in year 1, as well as throughout the return to the equilibrium level. Even after five years, a small difference is still noticeable. In Graph 18, it is assumed that the ECB would cut the interest rate relative to the Taylor rule by 100 basis points for one year, after which interest rates are set higher again to combat inflation in accordance with the Taylor rule. Since the reversal of the reduction in interest rates is already known in the model at the time when it occurs, the policy generates a temporary increase in GDP only, i.e. agents try to benefit from the lower costs of capital first of all in year 1.

A key driver in the interest rate simulation appears to be the adjustment costs in the investment function, which make investment more responsive to changes in capital costs in the flexible model. It is, however, unclear at this stage whether the finding of structural rigidities impacting via adjustment costs of investment can be directly translated into actual behaviour.

A drawback of the Quest model is that it is partly calibrated and the coefficients reflecting nominal and real rigidities are based on a collection of other empirical studies. A new model, recently estimated by Commission staff, contains both more explicit micro foundations and a direct estimation of the adjustment costs through which the real and nominal frictions are investment behaviour accordingly and in a forward-looking manner.

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14 For a more detailed explanation of the Quest II model, see Röger and in’t Veld (1997).
15 The observation that most of the adjustment takes place in the first year is due to the fact that the shock is assumed to be known to all agents, who adjust their spending and
modelled. In this model, rigidities are derived from adjustment costs for capital and investment, wages, prices and employment. The experiment consists in analysing the model’s impulse responses with the responses of a model in which these adjustment costs are reduced by 20 per cent across the board.

To see the effect of a more flexible economic environment, both the baseline and the flexible scenario were exposed to all the structural shocks identified in the model. It turned out that the impact was stronger in all cases for the flexibility scenario than for the base line. However, the difference was often only very small between the standard case and the case for lower adjustment costs with the notable exception of investment, where differences turned out to be significant. These first results with the new model point to rigidities affecting cyclical activity first of all via their effect on investment. In order to allow comparability with the Quest model, Graph 19 displays the impact of a TFP shock on real output (GDP) and some other key variables (investment, consumption, capital, employment, inflation) over the first five years after the shock.

Both model simulations show that structural rigidities have an impact on the adjustment to shocks. The largest impact of rigidities is via investment and on long-term growth. The difference between the flexible and rigid scenario was, however, not very pronounced. Thus, the observed difference in the adjustment to shocks arising from a quite strong variation in adjustment costs in the rigid and the flexible scenarios suggests that structural rigidities are unlikely to be the only explanation of why the latest rebound of the euro-area economy was less dynamic than in other industrial economies.

4.2 The recovery’s employment-content

A possible consequence of resilient employment growth in the downturn is a more muted response of employment growth to the upswing. This could imply that households’ disposable income will increase relatively little and private consumption will expand at a modest pace, giving relatively little impetus to the upswing.

- The hypothesis of only modest future job creation finds support in the observation that the current rate of unemployment is only slightly higher than the estimate of structural unemployment. This suggests that there is little cyclical slack in the labour market, which would undo during recovery.

The model is a New-Keynesian Dynamic Stochastic General Equilibrium model for the euro area. It is estimated using Bayesian estimation methods on quarterly data from 1980 to 2003. The model belongs to the class of new models building upon the New-Keynesian paradigm, which combines elements from the RBC literature with more traditional Keynesian ideas. This allows combining optimal behaviour with rigidities in a way which avoids the Lucas critique. For a description of the model, see Ratto, Roeger and in’t Veld (2004).

The Commission estimates the NAWRU (Non-accelerating wage rate of unemployment) is about 0.5 percentage point lower than actual unemployment in 2004 and 2005. The NAWRU is a concept similar to the NAIRU but focuses on the impact on wage growth rather than on inflation.
Further support for this hypothesis is based on the observation that the muted labour market response in the early phase of the downswing was partially due to firms’ labour hoarding. If firms are endowed with more labour than usual at the beginning of the rebound, they would need to create fewer jobs if demand strengthens.

The early phase of the US recovery has been characterised by job-less growth. While this is partly related to the usual delay with which the labour market responds to changes in economic activity, it has also been argued that it could be due to the structural change that is taking place. Unemployed workers cannot count on finding a job in the industry in which they were previously employed, but must find a job in different firms or industries. This could be more difficult and takes more time.\(^\text{18}\) The same reasoning could apply to the euro area.

\textit{Labour supply forces} Reassuringly, aggregate labour supply should not be a serious obstacle to a future upsurge in employment growth in the euro area. The current levels of unemployment, participation and working time suggest there is still sufficient margin for an expansion of employment.

- About 1.5 million people have become unemployed between 2001 and 2004. If they were re-employed within one year, employment growth would rise by 1 per cent.

\(^\text{18}\) For an elaboration of the reasoning and empirical evidence, see Groshen and Potter (2003).

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\(^\text{18}\) For an elaboration of the reasoning and empirical evidence, see Groshen and Potter (2003).

Graph 20 shows that the development of employment and unemployment decoupled in the recent slowdown after having moved in tandem throughout the 1990s. This indicates that the trend of rising labour force participation is unbroken in the euro area.\(^\text{19}\)

- Working time has declined in the euro area. The share of part time work increased from 12 per cent in 1992 to 17 per cent at the end of 2003. Average working time has declined by about 0.5 per cent on average since 1995. In the case of labour market tightness, the trend of declining working time might reverse.

\textit{Labour demand forces}. Labour demand tends to follow economic activity with a lag and the average lag is longer in the euro area than in the USA or the United Kingdom.\(^\text{20}\) Thus firms are quicker in more flexible economies to adjust their workforce to changes in demand. Assessing the relative importance of cyclical and structural determinants of labour demand is complicated by the possibility of a structural break in employment-income relationships in the mid-1990s. Since then, employment growth has been stronger than

\(^{19}\) Considering that only 62.4 per cent of the population aged between 15 and 64 were employed in the euro area in 2003, whereas the employment rate was above 70 per cent in some EU Member States (DK, NL, SW, UK), there is further leeway for higher participation. See Chapter 3 for more detailed analysis.

\(^{20}\) The coefficient of correlation between the growth rates of industrial production and industrial employment is higher for the USA and the euro area in the periods 1996-2000 and 2001-04. When lags are taken into account, it reaches the maximum after 2-3 months in the USA compared to 6-9 months in the euro area.
expected given the observed growth in GDP. The estimates in Chapter 3 suggest that part of the increase in the employment content of growth is of a structural nature. Rising labour market participation of women, wage moderation and possibly labour market reforms enacted in some Member States are important drivers of structural improvements. They imply that comparisons over cycles as shown in Graph 6 can be misleading. For instance, the first half of the 1990s was characterised by strong labour capital substitution, which caused a strong decline in employment and was itself caused by a pick-up in real wage growth. A reversal of this substitution has been observed in the second half of the 1990s, spurred inter alia by moderate wage growth.

An important cyclical factor is the existence of labour hoarding in the slowdown, which suggests that hiring could be smaller in the upswing. Estimating the level of slack of labour in firms can be done by comparing the number of persons employed with the number of hours worked because one would assume that if demand falls and labour hoarding exists, the persons employed work less hours. However, hours worked fell in the euro area and they did so most pronouncedly in the period of strong demand 1999-2000. At that time, many part-time jobs were created, supposedly in services, yielding a decline in average work hours per person. Graph 22 demonstrates that hours worked fell continuously in industry, where the trend towards part time work is less prominent. From 2001 to mid-2003, the decline in hours worked was particularly pronounced. From mid-2003 onwards, hours worked increased while employment in industry continued to fall. This is in line with the assertion that firms cut back the existing slack before creating new jobs.

Employment growth continued during the growth slowdown in a few service sectors, cushioning the job losses in industry. Job creation took place in two principal sectors, i.e. financial intermediation and the so-called “other services”. Employment in industry was shrinking in all quarters since 2002 and in trade, transport and communication services for almost a year. In the service economy, more specifically, net job losses occurred in water and air transport services and computer activities, where the latter had witnessed strong employment growth in the previous boom. These observations somewhat qualify the notion of widespread labour hoarding. Graph 23 suggests that employment growth in industry and services follows a similar cyclical pattern and therefore depends on similar determinants over the business cycle. The main difference is in the level of the rate of growth.

According to some economists, the re-allocation of labour across industries and sectors is a main benefit of a recession because it shifts labour to more productive uses. A drawback is that structural change might cause a delay in the rebound of employment growth because it takes more time and efforts for unemployed workers to find a job in a different industry than become re-employed in the one where they had been employed.

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**Note:** Data for 2004 are Eurostat estimates.  
**Source:** Commission services.

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**Graph 22: Persons and hours worked in industry, euro area**

![Graph 22](image1)

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**Graph 23: Employment growth in industry and services, euro area**

![Graph 23](image2)

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21 This is the mirror-image of the decline in labour productivity growth.

22 The statistical category of “financial intermediation” includes real estate, renting and business activities. “Other services” includes public administration and defence, compulsory social security; education; health and social work; other community, social and personal service activities; private households with employed persons; extra-territorial organizations and bodies.
In order to shed some light on the question of to what extent job losses were cyclical or of a structural nature, Graph 24 relates employment growth in the previous boom period with employment growth in the subsequent slowdown in different industries. It neatly illustrates that job creation was prominent in the service economy whereas jobs got lost, even during the previous boom period, in some industrial sectors. Sectors where employment growth or shrinkage was the same in both boom and slowdown seem to have witnessed structural employment growth or deceleration, respectively (Structural decline and structural growth quadrants in Graph 24). Employment losses might be of a more cyclical nature in those industries where employment grew in the previous boom but declined during in the slowdown (Cyclical decline quadrant in Graph 24).

Re-structuring within the manufacturing sector seems to take place from the production of consumer goods to the production of capital goods. The sector that produces consumer durables saw the most pronounced decline in employment in the previous boom as well as in the slowdown. On the other side, employment increased in the boom and moderately declined afterwards in the capital goods-producing industry. A similar sectoral change is visible in production figures. Industrial production of consumer durables in the euro area declined by 10 per cent between 2001 and 2004, but was almost steady for capital goods production. Surprisingly, a similar change in the weight of sectors is not visible in export figures. Extra euro-area exports of consumer goods were no more strongly affected by the slowdown in world import demand than exports of other goods.

An explanation for this finding could be that the decline of the share of consumer goods in production is due to the weakness of households’ demand in the euro area rather than driven by a re-allocation of global production.

### 4.3 Labour productivity growth, investment and potential output growth

Hardly any development raised more concerns about the euro area’s underlying growth potential than the observed decline in labour productivity growth. Growth in average real GDP per person was less than 0.5 per cent in the period 2001-03, which is about 1 percentage point less than during the 1990s on average. It is well-known that labour productivity growth is typically procyclical, i.e. increasing in a boom and declining in a bust because of the lag with which employment tends to respond to changes in output. Nevertheless, the extent of the slowdown in labour productivity growth came as an unwelcome surprise. Some argued that it could indicate a slowdown in the rate of potential output growth.

Since labour productivity growth is the key determinant of potential output growth in the medium to long term, this section addresses the arguments over whether the most recent slowdown in productivity could be of a temporary or longer term nature. More detailed analysis of this issue can be found in Chapters 3 and 4 of this Review and Chapter 2 of last year’s edition.

The slowdown in actual labour productivity growth already had an impact on calculations of potential output growth. The Commission’s estimate, the method for which is quite sensitive to recent developments, indicates that potential output growth in 2004 has been around 2 per cent, which is a good deal below the widespread rule of thumb that sees potential growth closer to 2.5 per cent. Graph 26 shows the Commission estimates of potential output growth in 2000, when the method was first introduced, in 2002, which was done with a refined approach, and in 2004. The sensitivity of the method to actual developments, however, implies that potential output growth estimates could return to higher rates under the condition of a pick up in labour productivity growth.

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23 Empirical evidence on the link between labour market regulation and performance has been scant. However, Caballero et al. (2004) present new evidence that employment protection regulation hampers the re-allocation of jobs.

24 A breakdown into durables and non-durables is not available for trade figures.

25 See, for instance, Gern et al. (2004).

26 The IMF revised downwards its estimate of potential output growth in the euro area by 0.5 percentage point to 2 per cent in summer 2004, see IMF (2004a). CEPS (2003) reports that long-term growth expectations in the Consensus forecast fell by about 0.5 per cent to 2.2 per cent from 2000 to 2003.
In addition to actual productivity developments, which can only give limited insights into whether the slowdown is permanent or a cyclical phenomenon, a number of arguments can be brought forward as to why the slowdown in productivity growth could be of structural nature.

- Labour productivity growth has been on a downward trajectory since the 1970s. It continued to head downwards in the euro area also in the 1990s.\textsuperscript{27}
- Expectations that the reversal of the productivity trend in the USA could also occur in the euro area have somewhat lost their justification after recent estimates on the basis of improved data have shown that the gap in hourly productivity between the euro area and the USA is much smaller than previously thought. Thus, the forces that would drive the catch-up process to the US level are weaker than believed a few years ago.
- There is now less reason than previously to assume that the productivity growth acceleration due to ICT witnessed in the USA would equally materialise in the euro area. A large part of these productivity gains accrued in the production of ICT, which has a larger share in production in the USA than in the euro area.

Some observations suggest that cyclical factors are responsible for part of the productivity slowdown witnessed since 2000. Their impact may fade or even revert once demand growth gains momentum.

The first observation is regarding the impact of resilient labour market performance on productivity growth. The above discussed how labour hoarding by firms artificially reduces productivity growth on a temporary basis. Moreover, economic growth has become more employment-intensive since the mid-1990s due to job creation in sectors with low or difficult-to-measure productivity. Analysis in the 2003 Review, updated in the current issue’s Chapters 4 and 5, suggests that employment creation could explain about 20 per cent of the reduction in labour productivity growth measured during the 1990s.

A second observation is related to the decline in investment witnessed over the past years. Graph 27 demonstrates the degree of co-movement between investment and two measures of productivity growth over the 1990s. The graph suggests that the generally close relationship between investment and productivity growth did not hold in the late 1990s when investment activity boomed but productivity growth hardly accelerated. Possible reasons are the counter-veiling influence of strong employment growth in this period or investment taking place in less productive parts of the economy.

\textsuperscript{27} Empirical estimates of productivity growth that control for different input variables tend to find the time trend to be a significant determinant that enters the estimates with a negative sign.
In particular, the latter hypothesis fits with the assessment that investment since the late 1990s has followed a boom-bust pattern. Declining interest rates and buoyant stock market valuations, in combination with a wave of optimism stemming from potential gains from the diffusion of ICT, advancing economic and financial integration and not at least the emergence of macroeconomic stability are thought to have been particularly conducive to investment.28 The consequence of strong investment was a sizeable build up of corporate debt that did not prove sustainable when economic growth waned. Graph 13 (Section 3.2) gives an overview of main developments, which were discussed in more detail in the EU economy 2003 Review. It turned out that corporations trimmed down investment in order to restore balance sheets. Issuance activity to obtain financing from markets came to a virtual standstill for non-financial corporations. Banks became particularly prudent in their lending policies, relying to some extent on a tightening of non-price terms. This made it difficult for especially small, young enterprises and firms acting in a risky environment to obtain financing. Industry reports suggest that many of the firms founded in the late 1990s and active in high tech or ICT did not survive the slowdown, implying that the expectation of profits from exploiting technological advances had been exaggerated during the previous boom. The number of bankruptcies rose in a number of euro-area countries.

Technical progress is a further factor impacting on investment and productivity. As stated, many firms founded in the late 1990s that tried to exploit technical advances in high-tech and ICT seem not to have withstood the growth slowdown. Moreover, benefits from ICT use appear now to be smaller than assumed earlier. But it should not be forgotten that incentives for research and innovation may vary with the cyclical situation. The incentive to innovate is largest when economic activity is buoyant because this allows the entrepreneur to accrue the maximum benefit from his initial monopoly margins before imitation reduces his profits.29

Investment goods continue to become cheaper than other goods, suggesting that technical progress has not slowed down. Although the economic significance of technical progress is difficult to gauge, some indicators such as data on patenting activity, R&D expenditures and venture capital financing are available. Graph 29 shows an indicator derived from price developments directly linked to investment activity. It rests on the assumption that any improvement in investment-specific technical change should – under the assumptions of a competitive market – reduce the prices of the investment goods concerned relative to other prices in the economy.30 So, the relative price of investment goods can be a proxy for the pace of technical progress embedded in investment goods. Against this background, Graph 29 shows the price of three categories of investment good, expressed in relation to consumer price developments. Investment in equipment has become cheaper over time, relative to

28 Total investment growth as recorded in the national accounts seems not to properly reflect the strength of investment activity, which was most concentrated in ICT and high-tech industries. Moreover, continuous dis-investment in the German construction sector as well as a considerable share of investment taking place in the form of both FDI and corporate re-structuring via the acquisition of financial assets lead national accounts data for the euro area to underestimate the strength of investment activity.

29 For a more elaborated view on how the cycle may interact with innovative activity, see Wälde (2004) or Francois and Lloyd-Ellis (2003) and the references quoted therein.

30 This variable usually turns out to be significant in empirical estimates of investment. See the chapter on investment in the EU ECONOMY 2001 REVIEW. For an application of the concept, see also Fisher (2003).
consumer prices and investment in construction or other products and the price advantage even increased during the slowdown.

The factors that affected investment growth during the growth slowdown were either of a temporary nature or can be expected to reappear once economic activity picks up momentum. Graph 30 summarises the cyclical development of the major determinants of investment as they were expressed by industrialists in the Commission’s bi-annual investment survey. Demand and financial conditions were seen as very supportive to investment in the boom period of the late 1990s. This assessment weakened considerably afterwards and returned in 2004 to its average 1991-2004. Also the conduciveness of technical factors weakened after 2000 and subsequently re-approached its long-term average.

Graph 30: Factors driving industrial investment, survey data euro area

4.4 Determinants of households’ savings behaviour

4.4.1 Documenting the weakness of private consumption and the rise in the saving rate

Since the beginning of the latest downturn, consumer expenditure in the euro area has been very subdued. Between the second quarter of 2001 and the fourth quarter of 2003, private consumption practically stalled, growing by a mere 0.2 per cent (quarter-on-quarter) on average. Although over the long run, consumption and real disposable income are closely correlated in the euro area, significant divergences have recently taken place. Between 1992 and 2000, for instance, the annual average growth rate of household consumption was 1.9 per cent compared to a growth rate of 1.2 per cent for disposable income. By contrast, over the last three years, the growth rate of consumer expenditure was constantly below that of real disposable income. On average, between 2001 and 2003, consumption grew by 3.3 per cent, while disposable income rose by 3.6 per cent.\(^\text{31}\)

In contrast with the weakness of capital spending, which was a common feature of many industrialised economies during the downturn, the weakness of household spending was more specific to the euro area. Subdued consumer spending over the last three years was also mirrored by an increase in household saving rates across most euro-area Member states. This, again, contrasts with developments in some of the euro area’s main trading partners.

Graph 31: Household saving rate in cyclical downturns, euro area (in % of disposable income)

31 Gross disposable income and consumption in current prices in the euro area, excluding Ireland, Luxembourg and Portugal for which data was not available.
According to the standard (life-cycle) approach, households save because of a desire to provide for a smooth consumption profile over time in the presence of cyclical income fluctuations and various types of uncertainties concerning lifetime resources. Thus, the rise in the household saving rate, at a time of subdued economic activity, is difficult to reconcile with recent business cycle facts. Consumption smoothing over the life-cycle would imply a decline in household savings during a slowdown. In the recession of the early 1990s, for instance, households partly offset adverse developments in disposable income by curbing their savings rate (Graph 31).

There is no completely satisfactory explanation for the weakness of consumer spending in the euro area over the last three years or why households saving rates recorded a similar “adverse” pattern. This section briefly elaborates on a number of possible factors behind recent household consumption and saving behaviour, including the lingering effects of past large equity losses, house price developments, high perceived inflation, downward revision of expected future income streams and, finally, uncertainty about policy and structural reforms.

As regards potential implications of subdued consumption growth in the past for the future pace of consumption, it can be hypothesized that sluggish consumption could continue if the increase in the saving ratio was caused by structural factors that can be expected to persist. On the other hand, if the factors causing subdued consumption are of a cyclical nature or may be influenced by policies, a reversal of past trends could be hoped for.

### 4.4.2 The impact of wealth and financial factors

In standard consumption equations, household consumption and saving decisions are affected by other factors apart from disposable income, such as wealth, interest rates and inflation (the latter is often used as a proxy for the uncertainty concerning the real depreciation of non-indexed financial assets). Equations using such variables generally provide a good fit for consumption and savings developments. A consumption function of this type was estimated by Commission Services using euro-area quarterly time series. According to the estimated equation, the weakening of consumption over the 2001-2003 period is mainly due to developments in disposable income and the bursting of the equity bubble. In addition, the rise in inflation weighed on private spending in 2001-2002, while the short-term interest rate provided moderate support for consumption in 2002 and 2003. Overall, the estimated equation attributes an important role to stock market wealth effects in the current cycle. Private spending would have been significantly less buoyant in the late 1990s and more resilient in the ensuing downturn in the absence of the observed movement of stock market prices. Furthermore, given the long lags involved, negative stock market wealth effects were still weighing on consumption during the second half of 2003, despite a pick-up in stock prices.

However, while the estimated consumption function tracks actual developments in consumption over the 1990s relatively well, including the 1992-93 recession, it clearly performs less well after the turn of the decade. As shown in Graph 32, household spending has remained below that predicted by the equation since 2001. Overall, the estimated consumption function suggests that the level of private consumption is currently somewhat weaker – by about 0.7 per cent – than what would be expected given prevailing macroeconomic conditions.

Due to the lack of appropriate quarterly data, non-stock market wealth effects were not included in the estimated equation. As the contraction of total financial wealth over the past few years has been less marked than the contraction of stock market wealth and, at the same time, residential property prices have been picking up, the equation may thus overestimate the negative impact of wealth on consumption. A major implication is that recent consumption developments may have been even more subdued relative to prevailing macroeconomic conditions than suggested by the consumption function.

However, the interrelation between house price movements and consumption is not straightforward. On the one hand, wealth effects may encourage consumption especially if the capital gains from the appreciation of house prices can be extracted via mortgage capital withdrawal. This possibility, however, is much less commonly used in the euro area than in the USA and the UK. On the other hand, higher house prices may induce households to save more in order to...
Note: Consumers’ inflation perceptions are balanced responses on “price trends observed over the last 12 months” reported by the EC survey on consumer confidence. Source: Commission services.

accumulate funds to cover the higher down payments required for future house purchase or for capital repayment. See Box 2 for an overview of the impact of housing prices on private consumption.

Perception of current and past inflation. Consumer’s perceptions of the current level of inflation may also have exerted a drag on household spending. In theory, inflation perceptions should not affect consumer behaviour as, on average, they must equal actual inflation. In fact, the rate of inflation as measured by the HICP Index and inflation perceptions as measured in the European Consumer survey were broadly in line for most of the nineties up to the year 2001 when the euro was physically introduced (Graph 33). Since then, there has been a structural break between perceived and actual inflation with the consumers systematically overestimating actual inflation developments. The rise in perceived inflation may have led households to underestimate their purchasing power and, in turn, to curtail their consumption.

The importance of inflation perceptions as a source of consumption weakness in the euro area in recent years should not be overestimated, however. Note for instance that, while in 2002 the rising gap between actual inflation and its perception by households may have acted as a drag on consumer spending, the gap narrowed significantly during 2003 without triggering a noticeable release of pent-up demand. Also, it is noteworthy that consumption weakness and the increase in households’ savings rate took place in 2001, i.e. before the apparent consumers’ marked overestimation of actual inflation. The divergence between actual and perceived inflation may offer some explanation of the euro area consumption/saving puzzle. However, it may also be the case that the gap actually captures other non-observable factors such as a re-assessment of long-term growth perspectives or heightened uncertainty.

4.4.3 Downward revision of long-term growth prospects

A second line of reasoning attributes the weakening of consumption growth in the euro area could be due to a downward revision in households’ expectations of future income growth. These expectations could stem from a number of factors, among which the impact of ageing on future labour input is the most obvious. The trend decline of labour productivity growth, as well as weaker than expected actual GDP growth during the 2001-03 period, could also matter. In the same context, Commission estimates of potential output growth were downscaled by about 0.5 percentage point between 2002 and 2004 (see Graph 26 above), supporting the notion that previously-more-upbeat growth prospects were corrected.

The impact of diminishing expectations of future income growth on current spending could be substantial. The permanent income hypothesis predicts an immediate adjustment of spending patterns. If households expect a decline in the discounted value of future labour income, savings should increase and consumption should accordingly drop. A reduction of expected future income growth from 2.5 per cent to 2.0 per cent, in line with the downward revision of potential output growth, would for instance yield a decline in the present value of future income by a quarter of a percentage point, assuming a discount rate of 4 per cent, and even more if the discount rate is smaller. Consumption may be assumed to shrink by about the same amount.

There are, however, problems with the application of the permanent income hypothesis. First, since permanent income is the unobserved outcome of consumers’ rational expectations, it cannot be tested directly. Despite being a theoretically sound concept, i.e. being consistent with the paradigm of the optimising individual, its

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33 Note the difference between inflation perceptions and inflation expectations used in Graph 33 and 43. Both variables are drawn from the Commission’s consumer surveys, with the first variable relating to households’ assessment of past price trends and the second to future price trends.


35 See Attanasio (1999) or Romer (2001) for overviews of the theory and empirical evidence supporting the permanent income hypothesis.

36 Dreger and Reimers (2003) estimate that the elasticity of consumption with respect to income is close to 1 in the euro area. This is considered to be compatible with the permanent income hypothesis. A similar elasticity was found in the Commission estimates published in the Quarterly Report on the Euro Area 1/2004. In theory, the magnitude of the elasticity depends on the properties of the utility function.
Table 5: Correlation between future labour force growth and indicators of private consumption across euro-area Member States

<table>
<thead>
<tr>
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<th></th>
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</thead>
<tbody>
<tr>
<td>2005-25</td>
<td>0.03</td>
<td>0.31</td>
<td>0.15</td>
</tr>
<tr>
<td>2005-50</td>
<td>0.03</td>
<td>0.14</td>
<td>0.36</td>
</tr>
<tr>
<td>Deceleration compared to 2000-05</td>
<td>-0.32</td>
<td>0.68</td>
<td>-0.43</td>
</tr>
<tr>
<td>2005-50</td>
<td>-0.25</td>
<td>0.65</td>
<td>-0.45</td>
</tr>
</tbody>
</table>

Source: Commission services.

Predictions are difficult to reconcile with some empirical observations. So, consumption growth should be counter-cyclical and not pro-cyclical. Specifically, consumption should be invariant to foreseen changes in income. However, the majority of the households have little wealth and need to finance consumption from current income. Second, whereas a sudden downward revision in potential growth could explain the structural break in the consumption function (Graph 32), it is difficult to justify why expectations should have adjusted abruptly. Most of the factors that could motivate a downward adjustment, namely ageing, labour productivity trend, actual growth, emerged gradually. The impact of ageing and the trend decline in labour productivity on future income was already known in the late 1990s, when consumption growth was high. Finally, it seems unlikely that the average consumer adjusted consumption to a change in future income years before economists started speculating that long-term growth prospects could have waned.

Graph 34 shows that the correlation between the downward revision of potential output growth and private consumption growth across euro-area Member States is positive but weak. Those countries where the potential output growth estimate was only mildly downscaled witnessed the highest consumption growth. However, this result is partly due to the indirect impact of actual consumption growth on the potential output estimate, because consumption is the most important component in GDP and actual GDP has an impact on the calculation of potential GDP. As a cross-check of this hypothesis, there is no evident relationship between the downward revision of GDP on the one hand and the deceleration of consumption growth or the increase in the saving ratio 2001-04 on the other hand.

Graph 34: Consumption growth and downward revision of potential output growth

If the hypothesis that the expected decline in income growth causes the recent weakness in private consumption is true, there should be some relationship between current consumption indicators and variables impacting on future growth. Countries where the labour force is shrinking substantially and where growth will therefore decelerate more than in other countries could, for example, witness particularly subdued consumption growth. This line of reasoning is sometimes heard when it comes to explaining the weakness of consumption in Germany. Investigating this hypothesis by looking at cross-country variation in labour force growth and consumption growth yields mixed evidence. Coefficients of correlations do not exhibit the expected sign and their magnitude varies depending on the indicators used. Correlations are strongest between the change in the future growth of the labour force and the change of consumption as well as with the change in the saving ratio. This would be consistent with the permanent income hypothesis if one assumed that agents had previously counted on a continuation of current labour force trends and this expectation was revised when more realistic population projections became public during the debates on pension reforms.

37 Tests of whether consumption Granger-causes income, which is a prediction from the permanent income hypothesis, yielded mixed results. While the results for the euro-area aggregate and Germany supported the hypothesis, those for France did not.
4.4.4 Precautionary savings and public policy

Last but not at least, private consumption could have been discouraged by the consumers’ assessment of the state of the economy. Households may have increased their precautionary savings because of heightened uncertainty during the growth slowdown. The expectation of rising unemployment seems to have dented consumer confidence as suggested by the strong correlation between consumers’ assessment of unemployment prospects, which is an important component of the Commission’s consumer confidence indicator, and actual changes in the rate of unemployment (see Graph 35). Elevated geo-political uncertainty after the terrorist strikes of 11 September might have also contributed, although the structural break found in the empirical estimates presented above took place before autumn 2001. Households may also have increased savings in response to the uncertainty arising from the impact of structural reforms on future income. An important factor could also have been that the deterioration of government balances led to so-called Ricardian effects. Such effects rely on households’ expectations that higher public deficits today mean higher future taxes and should accordingly be met through higher present savings.

Discriminating between the different hypotheses empirically is again hampered by data considerations. Finding adequate proxies for precautionary savings and factors capturing uncertainty is difficult. The following graphs present an attempt to distill the reasons for sluggish consumption from cross-country variations in various variables. However, the use of cross-country data means that only a limited number of observations is available, 12 for consumption aggregates, 9 for the gross saving ratio and 5 for the net saving ratio. In principle, the ideal variable to be explained is the residual of a consumption function, which depends on the availability of such an estimate for each Member State.

As regards the impact of fears of unemployment on saving behaviour, Graph 36 shows a very weak relationship between the increase in expected unemployment between 2000 and 2004, as expressed in the Commission consumer survey, and the change in the household saving ratio over the same period across Member States. The implied trend line would be close to horizontal, suggesting no relationship, if the Netherlands were taken away from the sample. The suggested link is also much weaker if based on the actual change in unemployment instead of the expected trend in unemployment in the consumer surveys.

Ideally, a microeconometric approach would be needed to reveal any impact of the uncertainty related to structural reforms and their impact on consumption via the uncertainty about future income. Households exposed to the effects of structural reforms would be expected to show different spending behaviour to those not or less affected. Experiments at the aggregate level similar to the cross-country comparison above using various indicators of poverty and inequality do not suggest any systematic relationship with the changes in the saving behaviour. Estimates did not produce any evidence that households increased their saving ratio by more when they lived in Member States where income inequality or poverty rates were higher or where

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38 BIS (2004) conjectures that uncertainties related to “proposals to urgently confront structural deficiencies in labour markets, pensions, health care and tax administration may have .. played a role here”.

39 This also holds if the estimate controls for the increase in households’ saving ratio over the 1990s. The variable capturing the expected and actual change in unemployment, respectively, is significant if the Netherlands is included in the sample but insignificant without the Netherlands.
governments spent more on public transfers, respectively, than those where inequality, poverty and public transfers are lower.\textsuperscript{40}

The most controversial debate in this area focuses on the impact of public finances on private consumption behaviour. Some Member States were hesitant in pursuing budgetary consolidation during the growth slowdown with the same vigour as in the late 1990s. Last year’s Review highlighted three pieces of evidence supporting that fiscal stimuli seem to have resulted in less private consumption. First, there is a close correlation between the budget deficit GDP ratio and the households’ saving ratio over time. Second, there is a puzzling negative correlation between quarterly private and public consumption growth since summer 2001. Third, tax cuts enacted in several Member States have not yielded the expected increase in private consumption.

The correlation between the variation of households’ saving ratio 2001-04 and the cyclically-adjusted primary balance (CAPB), which is the usual measure of the fiscal injection, across Member States, does not provide clear evidence. Countries where the fiscal stimulus was largest, i.e. a larger deterioration in the CAPB, experienced the largest increase in the gross saving rate. However, the coefficient is not significantly different from zero. Overall, these cross-country exercises did not provide clear results. This supports the point that more sophisticated methods that can both appropriately control for the different intervening effects and are able to discriminate between the effects of the different variables in a common setting are required before policy-relevant insights can be expected.

\textsuperscript{40} The same results hold if the social indicators are expressed as changes over time. The information on the change over time suffers from the fact that the most recent observation on the structural indicators of income inequality, at-risk-of-poverty and persistent risk of poverty are from 2001. To calculate the change over time, the 2001 information was compared with the average for 1995-2000. Another drawback is that the estimates could only be conducted for 9 Member States, for which information on the households’ saving ratio is available.
Box 2: The housing market and private consumption

Recent developments in house prices. Since the late 1990s, residential prices have increased significantly faster than consumer prices in the euro area as well as in the USA and the UK (see left panel of the chart below). Price rises were largely unaltered by the slowdown in economic activity after 2000, a development which stands in sharp contrast with the drop in real residential prices registered during the first half of the 1990s.

Recent trends within the euro area offer a contrasting picture (see right panel of the chart below). A majority of euro-area Member States have experienced a robust rise in real residential prices since 2000. However, several countries have registered either sluggish growth (the Netherlands and Finland) or an outright fall in real prices (Austria, Portugal and Germany).

Graph: Recent development in real residential property prices (I)

The possible impacts of housing markets on private consumption. There are several possible channels through which developments in housing markets may spill over into private consumption.

Firstly, changes in house prices affect household spending via changes in wealth and relative prices. Economic theory does not provide clear guidance as to the potential impact of a rise in house prices on private consumption. For landlords, a rise in house prices will have a positive impact on consumption via the wealth effect. Things are, however, somewhat different for owner-occupiers for whom the positive wealth effect will be partly offset by an increase in the imputed cost of the housing service associated with their home. Higher house prices will also have a negative incidence on the consumption spending of prospective new buyers who will need to save more to be able to afford their house purchase. Finally, to the extent that they permeate into rents, higher house prices will also weigh on tenants’ private spending.

A second channel is linked to the existence of credit market imperfections and asymmetric information. Insofar as houses are used as collateral, increases in house prices will raise the value of the collateral, thus allowing households to obtain additional credit and lift their consumption. The existence of such a channel is closely tied to the structural characteristics of the mortgage market and, in particular, the possibility of housing equity withdrawal.

Thirdly, housing markets also constitute a transmission channel of monetary policy that may have a direct incidence on private consumption. Changes in monetary policy affect mortgage rates and thereby the disposable income of indebted households if the mortgage rates of existing mortgage contracts are tied somehow to market mortgage rates.

Cross-country estimations of the size of the housing wealth effect. Although the issue of the size of the housing wealth effect has attracted significant attention in some countries such as the USA and the UK, empirical research on the euro area is still relatively sparse and cross-country comparisons remain relatively difficult. Nevertheless, several recent studies have endeavoured to quantify housing wealth effects in a multi-country setting. Methodologically, this recent research can be grouped along two types of approaches.

- Some studies rely on cross-sectional panel regressions to provide an average picture of the housing wealth effect in advanced economies. For instance, Case et al. (2001) estimate a simple consumption function relating private spending to income, equity wealth and housing wealth on a panel of 14 OECD countries and find elasticities of consumption relative to housing wealth in the range of 0.11-0.17. Ludwig and Sløk (2004) estimate a more sophisticated consumption function on a sample of 15 OECD countries. Using an error-correction model (where consumption is determined by a few selected variables in the long-run but can temporarily deviate from its long-term path) the authors find a substantially smaller impact of housing prices with a range of long-term elasticities of 0.01-0.04. This suggests that, although the housing wealth effect is generally positive in the OECD, the uncertainty regarding its size remains high.
• A number of studies have tried to assess the importance of housing wealth effects by estimating similar consumption functions across several countries, thereby allowing more meaningful cross-country comparisons. The next table provides a snapshot of the importance of housing wealth effects according to five such studies.

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<tr>
<th>Selected recent cross-country studies</th>
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<th>B &amp; P (2) Elast / house prices</th>
<th>H &amp; M (3) Elast / house prices</th>
<th>Catte et al (4) MPC out of housing wealth</th>
<th>B &amp; G (5) MPC out of housing wealth</th>
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(1) Eschenbach and Schuknecht (2002) – Based on a simple growth equation.
(2) Barata and Pacheco (2003) – The elasticities of consumption relative to house prices are derived from the long-run equation of an error correction model.
(3) Henley and Morley (2001) – The elasticities of consumption relative to house prices are derived from a model of consumption growth with progressive adjustment to permanent income shocks.
(4) Catte et al. (2004) – The marginal propensities to consume out of housing wealth are derived from the long-run equation of an error correction model.
(5) Boone and Girouard (2002) – The marginal propensities to consume out of housing wealth are those of the long-run equation of an error correction model.

Overall, several features stand out from the recent empirical research:

• Whereas housing wealth effects are generally identified in Anglo-saxon countries, evidence for euro-area Member States is mixed. Positive housing wealth effects can be found in some smaller Member States such as the Netherlands, Finland and Ireland. In contrast, it is likely that housing wealth has, at best, only a limited impact on consumption in the larger Member States, with France possibly being an exception. This explains the fact that a housing wealth effect is generally difficult to identify in the euro area as a whole.

• There is still substantial uncertainty as to the size of the housing wealth effect as reflected by large ranges of elasticities in most countries. Cross-country comparisons should therefore be made with caution. The estimation of the housing wealth effect is complicated by endogeneity issues (strong co-movements in house prices and consumption do not necessarily indicate a strong causal link from house prices to consumption) and serious data limitations. In particular, housing wealth data are available in only few countries and cross-country comparisons of wealth and house price data are still hampered by insufficient statistical harmonisation.

• The analysis of the impact of housing on private spending may be complicated by the possible existence of complex short-term dynamic effects. All studies based on error-correction formulations of the consumption function establish a long-term relation between housing wealth and private spending. However, in some countries there is also some evidence that housing wealth may play a strong role in the short-term developments of consumption, with possible overshooting effects (see, for instance, Catte et al. (2004)).

Finally, it is worth noting that little empirical research is yet available on the possible sources of country differences in the strength of the housing wealth effect. A major exception is Catte et al. (2004) who find a strong correlation between the importance of housing equity withdrawal and the estimated marginal propensity to consume out of housing wealth. This indicates that households’ ability to extract cash from increases in house prices is probably a key factor explaining the strength of housing wealth effects. Nevertheless, several other parameters may also be pivotal in this respect and would require further empirical research, including the rate of owner occupation and the size of housing transaction costs.

Explaining differences in the resilience of private consumption. The empirical research presented above suggests that developments in the housing market provide some help in explaining recent differences in the resilience of private consumption between the euro area and other OECD countries. In the past few years, household spending has probably been supported by a significant housing wealth effect in the USA and the UK, whereas gains in consumption attributable to housing wealth have, at best, had only a modest impact in the euro area as a whole.

Nevertheless, given the uncertainty still surrounding estimates of the housing wealth effect, the importance of this factor remains difficult to assess. For illustrative purpose, the left panel of the next chart displays the differences in per capita consumption growth between the euro area on the one hand and the UK and the USA over 2001-03. The chart also shows a range of estimates of the possible contribution of house prices to consumption in the UK and the USA for the same period. The contributions of house prices to consumption are calculated by simply applying elasticities of 0.05 and 0.15 to developments in real prices in the
two countries (the range of elasticities broadly covers the estimates presented in the previous table). The exercise suggests that, even with conservative estimates of the involved elasticities, housing prices have made a significant contribution to consumption growth in the USA and the UK in the past few years. However, it is necessary to assume a very large difference in housing prices elasticities between the euro area (on the one hand) and the UK and the USA (on the other) for the housing wealth effect to become the main explanation of the comparatively poor performance of consumption in the euro area since 2000.

In contrast, housing prices provide only relatively limited help in explaining differences in consumption growth within the euro area in the latest downturn. As shown in the right panel of the chart below, the correlation between differences in the growth of residential prices and differences in the performance of consumption is relatively low for the 2001-03 period. Furthermore the observed correlation does not always reveal a causal link via the wealth effect. Given the small size of the wealth effect in that country, the association of fast growth in residential prices and a relatively good consumption performance in Spain probably reflects the existence of common factors that have boosted both residential prices and consumption rather than a positive impact of residential prices on household spending. A similar point can be made for the association of weak growth in consumption and residential prices in Germany. Nevertheless, empirical research would tend to support the idea that housing prices have contributed positively to the resilience of private consumption in countries such as Finland and Ireland.

**Graph: House prices and private consumption resilience**

<table>
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<th>Contribution of house prices to consumption growth in the USA and UK *</th>
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**Euro areas (average annual growth in % 2001-03)**

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Note: (1) Impact of rise in real house prices assuming an elasticity of 0.05. (2) Impact of rise in real house prices assuming an elasticity of 0.15. (3) Growth in residential prices calculated over 2001-02. * Range of likely contribution annual average growth in per cent 2001-03.

**Source:** Commission services.

Overall, although recent empirical research on the link between housing markets and consumption has largely focused on the wealth effect in the broad sense (i.e. the first and second channels described above), the role of housing markets in the transmission of monetary policy (the third channel) should not be overlooked. Housing markets will amplify the impact of changes in monetary policy if the mortgage rates of existing debt are closely linked to base rates either because mortgage contracts are predominantly based on variable interest rates (as in the UK) or can be refinanced at a low cost (as in the USA). The share of variable rate contracts is low and refinancing is generally costly in the euro area. Cuts in base interest rates during the latest downturn have therefore probably had a bigger positive impact on consumption in the UK and the USA than in the euro area. It is also striking to note that mortgage rates are primarily variable in the three euro-area Member States that posted the stronger per capita consumption growth over 2001-03 (Finland, Spain and Ireland).
4.5 Factors behind prices stickiness

In the theoretical vision of a totally flexible economy, relative prices would adjust immediately to changing economic circumstances and economic agents would instantaneously modify economic plans so that economic quantities such as production or employment would adjust smoothly to the new equilibrium. A shortfall of demand would lead to lower prices. An easing of price and cost pressure fosters external competitiveness, increases real wealth and allows central banks to cut interest rates. All this would ensure a smooth rebound in economic activity.

Even abstracting from the vision of a totally flexible economy, inflation in the euro area declined less than it was expected to do during the recent growth slowdown. This inhibited the working of the factors just mentioned and might therefore have induced the economic recovery to start belatedly and sluggishly. This section provides some evidence on the reasons for stickiness of prices in the euro area.

4.5.1 Measuring price stickiness

Last year’s review already presented some evidence on price inertia, showing that the euro-area rate of inflation has a high degree of correlation with its past values, which means that it tends to change slowly over time. Moreover, the degree of persistence was measured to be highest in service inflation. Since much of the persistence of core inflation stems from the service sector, the lower degree of competition in the service economy, the relative importance of labour costs and less exposure to external shocks were considered to be determinants of actual price stickiness in the euro area.

Another informative measure of persistence is the time it takes for inflation to respond to a turning point in GDP growth. The picture of a high degree of cyclical invariance of inflation in the euro area is reinforced by plotting directly the dynamics of the output gap against core inflation in Graph 38. It shows that from the first quarter of 2003 core inflation in the euro area did not change much despite a sharp and continuous widening of the negative output gap. Evidently, GDP needs to grow at a rate below potential for some time before a negative output gap opens. For the euro area this took place in the fourth quarter of 2002, after six quarters of below potential growth. Moreover, inflation started falling while the output gap, albeit narrowing, was still positive. This suggests that it is not only the level, but also the change in the gap, that matters for the cyclical responsiveness of inflation – i.e. speed limit effects might be important.

41 See Lown and Rich (1997), who provide evidence that this is the case in the USA.

The macroeconomic literature highlighted a number of factors, explaining the sluggish adjustment of nominal prices. Price and wage rigidities imply that it usually takes time for price and wage levels to fully adjust to a given macroeconomic shocks. They can arise from

- institutional factors such as wage and price contracts of fixed durations, existence of staggered contracts, wage indexation, the nature of wage bargaining; which can all cause persistence in nominal wage developments (Section 4.5.2),
- the presence of so-called menu costs, which signify the costs of price adjustment, transaction and delivery costs. They are thought to be relatively more important the lower the rate of inflation and the lower the degree of competition (Section 4.5.3),
- backward-looking elements in the inflation expectation formation used by economic agents (Section 4.5.3).

42 The theoretical controversy does not contest the existence of price stickiness but centres on the question whether it is compatible with models of microeconomic behaviour.

43 As regards the forward-looking elements of inflation expectations, inflation persistence may arise due to a lack of credibility of monetary policy.
### Box 3: Inflation persistence in industrialised countries—Some recent empirical findings

Some of the key findings of several recent studies that investigate empirically the issue of inflation persistence in industrialised countries are summarised in this box.

Stock and Watson (1999), in a comprehensive study documenting the business cycle properties of 71 macroeconomic time series in the USA, find that price inflation is pro-cyclical and it lags the business cycle. The usual lag is of two to three quarters. Agresti and Mojon (2003), using data from 1970 onwards find that CPI inflation in the euro area lags GDP by three to four quarters—a slightly slower response than reported by Stock and Watson (1999) for the USA.

A somewhat counterintuitive result that some empirical studies have reported lately is that the level of inflation persistence in the euro area might not be significantly different from that in the USA. One of the most recent such studies is Levin and Piger (2003), who investigate the persistence of inflation in twelve countries, including the USA and the euro-area countries France, Germany, Italy, and the Netherlands. They analyse inflation persistence through autoregressions on headline consumer price inflation, core consumer price inflation, the GDP deflator and the personal consumption expenditure deflator. They find that for the USA all price measures exhibit a high degree of persistency, except headline consumer price inflation. For the four euro area countries covered they find roughly comparable levels of inflation persistence, although there appears to be somewhat more persistency over the four price measures in the Netherlands and Italy than that of France and Germany. The IMF (2003) finds only moderately higher, if at all, inflation persistency in the euro area compared with the US. Relying on univariate methods as well as estimation of Phillips-curves and VARs, this study finds little evidence of structural sources playing a more important role in persistency in the euro area. Differences vis-à-vis the USA are attributed to differences in the formation of expectations. Galí et al. (2000) is an earlier study which, based on estimations of the so-called New Keynesian Phillips curve, also concludes that there is a substantial degree of stickiness in the euro area which is not significantly out of line with the estimates obtained for the USA using the same model.

Another study pointing in a similar direction is Coenen and Wieland (2002). Using a three country macroeconomic model of the euro area, Japan and the USA, containing Phillips curves which differ in nominal rigidities in wages across the countries, they find higher nominal persistence in the USA than in the euro area. However, this finding is attributed to credibility effects from the FED’s accommodative attitude towards the oil price shocks in the 1970s and the subsequent period of higher inflation, and thus is not thought to reflect higher nominal rigidity than in the euro area.

Some of the above studies have also found evidence of a decline in inflation persistence over time. For example, the IMF (2003) reports that the persistence of inflation is found to be significantly lower since the mid 1990s. The main cause for this change, it is argued, relates not only to a more stable inflation anchor but also closer alignment of actual inflation to the perceived target. Levin and Piger (2003) find empirical evidence of a significant change taking place in the late 1980s or early 1990s. For the four current euro area members (France, Germany, the Netherlands and Italy) and two additional EU-member states (Sweden and the UK), the finding is seen in relation to the Maastricht criteria and the countries prospecting to EMU-membership. However, it seems at this stage that the results are not yet robust to the different methods, specifications and time periods chosen to examine inflation persistence. For instance, Batini (2003) and O’Reilly and Whelan (2004) report results indicating stable inflation persistence over the last three decades.

The above discussion thus confirms the long-held tenet that the level of inflation persistence might be closely related to the behaviour of inflation expectations. On this issue, some authors have lately argued that differences in inflation persistence may also reflect how fast inflation expectations respond to changes in the output gap (e.g. Erceg and Levin (2002), Kozicki and Tinsley (2002), Paloviita (2002, 2003) and IMF (2003)). A main finding is that the expected inflation reacts somewhat faster to changes in the output gap in the USA. Thus, in the most recent down-turn the proposition would be that not only the output gap turned negative earlier and more sharply in the US, but in addition there was a more rapid decline in inflation expectations as the economy weakened, which likely played a role in the faster cyclical response of inflation in the USA.
4.5.2 Wage rigidities

In order to evaluate the degree of nominal inertia in wages, Chapter 4 of the EU ECONOMY 2003 REVIEW presented econometric estimates of Phillips-curve type wage equations for euro area Member States. The model used explained changes in wage inflation by the unemployment gap, which could be subject to various shocks, in particular shocks to labour productivity, terms of trade and the wage share. Using the estimated Phillips-curve coefficients, it was found that for the euro area as a whole only about 65 per cent of the wage adjustment to a disinflationary shock takes place within the first year, suggesting the existence of substantial inertia in nominal wages.

A striking feature of the empirical estimates is that the degree of nominal wage rigidity found for the euro area as a whole does not appear to differ greatly from that of the USA. This finding underscores the difficulty to empirically identify institutional labour market characteristics as major determinants of nominal wage inertia.

Moreover, it is worth noting that establishing empirically a prominent role for wage indexation regarding consumer price inflation dynamics is not straightforward. A number of structural changes, such as a higher policy priority given to nominal stability and a heightened degree of competition in product markets, may have weakened the link between wage and price dynamics, implying that cost pressures due to temporary price shocks (such as oil-price increases) would less easily feed into consumer price inflation, despite the presence of wage indexation. Yet, despite a possibly weaker link between wage and price dynamics, the presence of wage indexation mechanisms may have important macroeconomic consequences for economies participating in a monetary union. In particular, to the extent that they contribute to wage rigidity, wage indexation mechanism would form an obstacle to a speedier adjustment of labour markets to asymmetric shocks.

In order to shed some further light on the importance of wage rigidities for price persistence, Graph 39 compares the degree of persistence, as measured by the coefficient of auto-correlation of the annual rate of change of value added deflators and hourly labour costs.44 It shows that persistence is high for all indicators but higher for prices than for labour costs.45 Accordingly, labour costs are unlikely to be the only reason for aggregate price persistence. The graph also shows that price and labour cost persistence is lower in industry than for the economy as a whole, meaning a potentially important role of structures in the service economy for explaining price and wage stickiness.

When the growth in hourly labour costs is plotted against the output gap as in Graph 40, which replicates Graph 38 but with the change in the hourly labour costs index instead of core inflation, labour costs developments lag the cycle by a considerable time.46 They continued accelerating until 2002 and started falling only from spring 2002 onwards, about two years after the peak in the output gap. The acceleration, however, was modest as nominal labour costs growth did not exceed 4 per cent. It was also to some extent driven by the simultaneous reduction in working hours. This is indicated by the more muted growth of nominal compensation per employee in the national accounts. It grew in a narrow range between 2¼ and 2½ per cent throughout the slowdown.

The relationship with nominal wage growth is more informative than that with unit labour costs because the latter’s behaviour over the cyclical is strongly determined by the pro-cyclicability of labour productivity. Therefore, it reflects more developments in GDP growth than developments in wages.
4.5.3 Menu costs, competition and price variability

A number of macroeconomic models justify the existence of price rigidities by the existence of menu costs. The expression originally relates to the costs of changing the price of menus in restaurants, but has become used to signify all costs embedded in changing the price. They can be physical costs but also those stemming from strategic decisions of enterprises. For instance, when establishing long-term customer relationships, the impact of price changes on customers’ search costs or on competitors actions may reduce firms' incentives to pass through higher input prices into output prices. Apparently, the degree of competition on product markets determines the importance of these considerations. The higher the degree of competition, the less scope there is for strategic decision-making that reduces price flexibility.

Economic research furthermore established some theories on the cyclical behaviour of prices, conjecturing why prices tend to increase less than costs in booms and vice versa. Shifts in the composition of demand towards goods and services where the elasticity of demand is lower, less competition as a result of less market entry or firms’ stronger incentives to collude rather than to fight for market shares by cutting prices when economic activity is low, are just three factors that might cause prices to fall less than warranted in a downturn. An additional theory, which is possibly relevant for the euro area, builds on the pressure of weakening demand on financially constrained firms. They might be reluctant to cut prices despite a weakening of demand in order to generate sufficient profits in the short term to remain able to meet their obligations from their liabilities. As euro-area corporations on average faced relatively higher debt in the last years, their price-setting behaviour could have followed this pattern.

Since little is known about the magnitude of menu costs in the euro area, Graph 41 presents an indicator that can be regarded as a proxy at the aggregate level. It measures the variability of relative prices, derived from the monthly changes of the components of the HICP where the changes were weighted with the share of the goods in the HICP goods basket. The higher the number of the indicator the more flexible are prices and, accordingly, the lower should be the costs of adjusting prices. The indicator was calculated with 90 non-subcomponents of the HICP and a second time with 12 groups of components in order to ensure comparability between the euro-area and the UK indicator. Since the resulting series is very volatile, the graph shows annual averages. It turns out that the indicator of relative price variability was higher until 2001 in the UK, which is widely perceived of having a more flexible economy, than in the euro area.

\[ \text{RPV} = \sqrt{\sum_i s_i (p_i - \bar{p})^2} \] where \( s_i \) is the share of good \( i \) in the basket, \( p_i \) is the monthly rate of change of good \( i \) and \( \bar{p} \) is the rate of change of the HICP.

47 In their empirical analysis of menu costs, Zbaracki et al. (2004) distinguish between managerial costs (costs of gathering information, decision-making) and customer costs (communication to customers, negotiations with customers).

48 See Rotemberg and Woodford (1999).
The indicator of relative price variability (RVP) was initially developed to measure inflation uncertainty. The economic literature appears divided over whether it is positively or negatively related with the rate of inflation.\textsuperscript{51} In the sample 1995 to 2004, there is no apparent correlation of the RVP with headline consumer price inflation in either the UK or the euro area. This also holds if energy goods are eliminated from both the panel and the consumer price index. Thus, the increase in price variability observed in Graph 41 is unlikely to be driven by inflation. It can, however, be shown that the increase in the euro area aggregate in 2002 and 2003 is essentially driven by strong variability of relative prices in January. Items where prices changed strongly in January relative to the rest of the year are health, insurances, waste collection, passenger transport, restaurants, cultural services, but also water, gas and electricity. Overall, it is likely that the increase in the RVP reflects increasing changes in administrative prices rather than a general improvement in price flexibility in the euro area.

Applying the RPV concept to hourly labour costs does not generate a discernible trend in labour cost variability in Graph 42. If at all, relative wage variability declined in 2002 and 2003. This does not necessarily point to an increase in the importance of wage rigidities, but could be due to some correlation of the wage variability indicator with wage growth. Note that the indicator was constructed with quarterly growth of hourly labour costs in 11 euro-area Member States and 4 sectors (industry, construction, trade services, and financial intermediation).\textsuperscript{52} A more detailed breakdown of sectors is likely to be more informative, but has not yet been possible with the macroeconomic data available.

### 4.5.4 Inflation expectations

In theory, inflation expectations play a key role in the relationship between the output gap and inflation.\textsuperscript{53} All else equal, sticky expected inflation would intensify the rigidity of wages and prices, reducing the responsiveness of actual inflation to any given change of the output gap.

The tentative evidence available for the euro area indicates that this is not a likely candidate for explaining price stickiness. Graph 43 shows that short-term price expectations derived from the EC consumer surveys tend to match actual inflation developments.\textsuperscript{54} They changed more forcefully than actual inflation in some episodes, for instance in 1993 after renewed currency speculation in the ERM, in 1999/2000 when oil prices increased and in 2002 when the full magnitude of economic weakness materialised. Using the coefficient of auto-correlation as a measure of stickiness, stickiness of price expectations in the consumer surveys is marginally smaller than stickiness of actual consumer price inflation. This finding, however, does not allow any conclusions to be drawn about the direction of causality. Inflation expectations might be sticky because actual inflation is sticky but could also be a reason for price stickiness.

\textsuperscript{51} Banerjee et al. (2002) find a positive relationship for the USA and the UK while Nautz and Schaffer (2004) find that it is not linked with expected inflation in Germany but to a measure of unexpected inflation only.

\textsuperscript{52} Sectoral wage growth in each country was expressed relative to total wage growth in the euro area and weighted with the share of the country’s sector in euro-area employment. The data series for the labour cost index starts in 1996 only, with observations in the first two years being quite volatile.

\textsuperscript{53} This was forcefully illustrated by the work of Friedman and Phelps in the 1960s, Lucas and Sargent in the 1970s and more recently by theories underpinning the so-called New-Keynesian Phillips curve.

\textsuperscript{54} For the period since 1991, the coefficient of correlation between both series is 0.76 for contemporary observations. It rises to 0.79 if one assumes expected inflation to lead actual price developments by 6 months. It is even slightly higher at 0.81 if actual HICP inflation is replaced by core inflation and if a 13 month lead is assumed.
4.6 Conclusions

The recent slowdown featured a number of factors, which were unexpected and made it unique in comparison to previous periods of slow growth. These factors can be expected to shape the dynamism of economic activity over the next years. Both the direction and magnitude of their impact depends on whether they signify the working of structural or cyclical factors.

- Macroeconomic simulations with two different models showed that structural rigidities have an impact on the adjustment to shocks. The difference between the flexible and rigid scenario was, however, too small to suggest that structural rigidities can explain all of the sluggishness in the rebound of the euro-area economy. They matter in particular for the rate of long-term growth.

- Resilient employment performance was due to a combination of cyclical and structural factors, i.e. labour hoarding, sectoral change and the usual lag with which employment responds to changes in GDP. More favourable labour market structures were based on conditions favourable to labour force participation and sectoral change. The assertion that constant employment during the period of the slowdown would mean weak employment growth in the next upswing is not inevitable.

- The prominence of cyclical factors such as a lack of demand and financial constraints in explaining investment bodes well for future investment growth once demand fully recovers and corporate overindebtedness has been fully worked out. Model simulations, however, suggest that structural rigidities mainly hold back investment activity.

- It is still uncertain whether the weakness of private consumption encountered in the previous slowdown is of a cyclical or structural nature. It can also not be excluded that public policies, in particular in the area of budgetary policy, structural reforms and pension reforms have adversely impacted on consumer confidence and spending.

- The lower the costs of adjustment the more responsive economic activity will be to changed economic conditions: in a totally, flexible economy, relative prices would adjust instantaneously. When it comes to understand sticky prices in the euro area, wage rigidities and imperfect competition, in particular in the service economy, feature high. They cushion the effects of adverse economic shocks, but at the expense of slowing the recovery.

5. Economic differences

The discussion above focuses primarily upon the euro area as a whole. But within an economy as large of that over the euro zone it is to be expected that performance will differ between different areas. This section takes a closer look at the performance of individual Member States in recent years and considers in particular whether the intra-area differences during the latest pick-up, in comparison with both the strength of the upswing in the late 1990s and the weakness of growth in 2001-03, can shed any further light on the causes of the overall slow response of the euro-zone to the global upturn. The intention is to extract from cross-country variations to what extent structural differences such as export-reliance or structural rigidities on the one hand and the working of intra-area adjustment mechanisms on the other hand impact on their cyclical position.

5.1 Measuring differences in timing and strength of the last upturn

A number of measures can be used to assess the timing and strength of the pick-up of growth in the euro area economies. The most precise means of measuring the timing is through examining quarter-on-quarter growth in GDP. Table 6 illustrates that the euro-area recovery was firmly centred on the third quarter of 2003, with the majority of countries switching from negative to positive quarterly growth during this period. A notable exception was Spain, where growth remained positive in each quarter of the latest global downturn. Greece and Ireland experienced more volatility, albeit essentially positive growth. The pick-up in Finland was slightly ahead of the euro-zone average, whilst in contrast, the upswing in the Netherlands lagged by a quarter, without remaining robust in 2004 and Portugal did not see a significant pick-up until the first quarter of 2004.
## Table 6: GDP growth – quarter on previous quarter

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<td>5.4</td>
<td>0.9</td>
<td>0.3</td>
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<td>-0.1</td>
<td>0.4</td>
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<td>0.3</td>
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<tr>
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<td>0.1</td>
<td>0.5</td>
<td>0.8</td>
<td>-0.1</td>
</tr>
<tr>
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<td>0.2</td>
<td>0.3</td>
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<td>0.9</td>
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<td>-0.1</td>
<td>0.9</td>
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<td>0.6</td>
<td>0.3</td>
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<td>0.5</td>
<td>0.4</td>
<td>0.7</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Source: Commission services.

Graph 44 shows the acceleration of growth in euro-area members during the current pick-up, i.e. between the second quarter of 2003 and the second quarter of 2004. All Member States shown recorded an upturn, and it is noticeable that it were not the small countries that in general fared better than the euro-area average. Whereas the smaller countries grew stronger than the larger ones in the upswing 1996-2000, the Netherlands, Austria and Portugal performed worse than the euro area average in the early phase of the current rebound.

Quarterly GDP is particularly helpful in pinpointing the timing of the upturn, a drawback is that stronger growth in, for example, Greece and Ireland, in part reflects stronger potential growth in those countries rather than say Germany and Austria. The comparison of actual GDP growth with the Commission’s estimate of potential GDP growth does not reveal any systematic pattern across Member States, suggesting that both cyclical and structural forces have been at play.

An obvious question is whether those countries expected to have the strongest pick up in growth in 2004 and 2005 were also those which had the strongest growth in the late 1990s and the shallowest downturn between 2000 and 2003. Graph 45 shows percentage point changes in the output gap in euro-area economies in those three periods, ranked according to performance during the downturn.

The graph points to three group of countries.

- Firstly Greece is the only country to have achieved above potential growth in the first two periods shown, with this trend expected to continue in 2004 and 2005.
- A second group including Germany, Spain, Italy, France, Austria and Belgium saw only a moderate cyclical upswing prior to 2001 and a moderate downsing in the following period.
- A third group includes those countries which enjoyed the strongest growth on this measure in the late 1990s upswing, namely Finland, Portugal, the Netherlands and Ireland (as well as Luxemburg, not shown), but which also suffered the strongest cyclical slowdown from 2001 to 2003.

The correlation of the changes in output gaps between both periods across Member States is minus 0.67 and therewith quite strong. It confirms the assertion that countries with strong growth in the late 1990s suffered more acutely from the slowdown than those with weaker growth.

### Graph 44: The up-turn in quarterly GDP growth: average growth, 2003Q3-2004Q2

![Graph 44](image)

Source: Commission services.

### Graph 45: Changes in output gaps

![Graph 45](image)

Source: Commission services.
It is also apparent that the final period for 2004 and 2005 appears to some extent a continuation of the preceding three years, with notably Portugal, the Netherlands and Ireland all forecast to see a further negative impact on their output gaps. In contrast, those countries expected to see above potential output in 2004 and 2005 all experienced milder cyclical downturns between 2001 and 2003. It therefore follows that those countries where output was strongest in relation to potential output in the second half of the 1990s are not the same countries in which we expect to observe above potential growth in the latest upswing.55

5.2 Can country-specific factors explain growth differences?

5.2.1 Openness and production structure

Small open economies in the euro area performed well in the economic boom period 1996-2000. As world trade growth faltered from 2001, those countries most exposed to world trade saw the lowest growth in absolute terms and relative to potential growth. That is, open countries see a more sluggish cyclical rebound than more closed economies, which is somewhat at odds with the image that most analysts have in mind.

Data looking at contributions to growth also supports the notion that trade performance can explain less of the difference in growth in the latest pick-up than was the case in the 1995-00 upswing. If we consider GDP growth since mid-2003, there is little correlation with the contribution to growth from net exports. Member States with the highest growth had the highest contribution from domestic demand while external demand contributed strongly to growth in those countries with subdued growth. This contrasts with a strong positive correlation between external demand and growth for both the previous upswing and the strength of the aborted recovery in 2002.

Graph 47 shows that those euro-area members with the strongest rebound in GDP growth also experienced the largest increases in value added in services during the upswing. Countries where the main driver of growth was industrial activity recorded lower growth in value added. Within the service economy, it has been in particular activity in financial intermediation, real estate, renting and business activities that contributed strongly to differences in growth performances among Member States.

The analysis of differences among Member States reveals a different perspective of the rebound than the euro-area aggregate. Domestic demand and the service economy are the main factors driving growth differences. But domestic demand is weak in the euro-area aggregate where growth depends prominently on external demand. Apparently, the difference is due to the structure and weight of Germany and Italy in the euro-area aggregate. Both countries recorded a slow rebound driven by external demand.

5.3.2 Structural rigidities

Factors such as trade exposure and output structure may affect the extent to which different economies are initially affected by a given shock, but factors such as employment market regulations and competitive pressures in product markets will affect the ability of the
Table 7: Correlations between changes in output gaps and indicators of structural rigidities (1)

<table>
<thead>
<tr>
<th></th>
<th>Government efficiency (IMD)</th>
<th>Employment protection legislation (OECD)</th>
<th>Product market regulation (Nicoletti et al.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999-2000</td>
<td>0.31</td>
<td>0.60</td>
<td>0.58</td>
</tr>
<tr>
<td>2001-2003</td>
<td>-0.23</td>
<td>-0.58</td>
<td>-0.67</td>
</tr>
<tr>
<td>2004-2005</td>
<td>-0.26</td>
<td>-0.48</td>
<td>-0.77</td>
</tr>
</tbody>
</table>

Notes: (1) A higher value on an indicator is considered more favourable.

(2) Ranking of quality of business legislation (includes openness, competition regulation, labour regulation, capital market regulation). Based on country rankings (IMD has two separate rankings for countries with populations greater and smaller than 20 million).

(3) Overall indicators of employment protection legislation (version 2). Late 1990s indicators used for first two periods, 2003 indicator for third period.


5.3 The working of adjustment mechanisms

5.3.1 Inflation differences

Within a monetary union with a single monetary policy, inflation differences between Member States can act as an important adjustment channel to differences in cyclical positions, to asymmetric impacts and adjustment to shocks. Graph 48 shows HICP inflation in euro-area members for 2003 and the Commission forecast for 2004. HICP inflation in 2003 ranged from 4.0 per cent in Ireland to 1 per cent in Germany, with these countries expected to see the strongest acceleration and deceleration in price rises respectively in 2004. Core inflation (excluding energy and processed food) was strongly correlated with HICP inflation and ranged from 4.3 in Ireland to 0.9 in Germany in 2003.

The ranking of Member States’ inflation performance is broadly in line with their growth performance with Germany and Austria on the lower end and Ireland and Greece at the higher end of the scale. The position of relative growth and inflation performance, however, differs in Belgium, Italy, Portugal and – in 2003 - in the Netherlands. There are two immediate consequences of inflation differentials for Member States, which have the potential to alter internal and external balance at the national level, namely heterogeneity in intra-euro area price and cost competitiveness on the one hand and in real interest rates on the other hand. The effectiveness of both channels is supposed to be related to country characteristics: the competitiveness channel is more important in small open economies and the real interest rate channel can be more prominent in larger economies where prices are stronger influenced by domestic forces than in small open economies.

Since a Member State no longer has the option of using the nominal exchange rate to help in the adjustment to country specific shocks, adjustment must come through changes in relative prices and wages compared to those
of the rest of the monetary union, that is, through changes in intra-area price and cost competitiveness. This effect is often referred to as the real exchange rate channel. Specifically, persistent above average inflation rates would contribute to a deterioration in intra-area price and cost competitiveness, hence depressing demand and providing relief to inflationary pressures.

When looking at the evolution of intra-area price competitiveness on the basis of developments in relative unit labour costs since 1998, four groups of countries can be distinguished. A first group is made up of Germany and Austria, who registered considerable gains in cost competitiveness over the first five years of EMU. A second group is composed of Belgium/Luxemburg, France and Finland, where relative cost competitiveness developed close to the euro-area average. A third group contains Greece, Ireland, Italy and Spain, where nominal unit labour costs grew significantly faster than in the euro area as a whole. Finally, a fourth group includes Portugal and the Netherlands, two countries where nominal unit labour costs have grown at a markedly higher pace than in the euro area as a whole.

The effect of the real exchange rate may only become significant with a lag of three-four years, Graph 49 shows those Member States that registered larger competitiveness losses are also those where the cyclical positions deteriorated the most, indicating that this channel, working in a lagged countercyclical fashion, is helping to resolve inflation differentials due to cyclical divergences. In contrast, some of the Member States that recorded close-to-average changes or gains in cost competitiveness also had more modest deteriorations in their (relative) output gaps, suggesting that the real exchange rate channel, again working in a stabilising counter-cyclical fashion, is also helping the recovery in some of the growth-lagging economies. The large positive contribution from external demand to growth in Germany, Austria can be seen a consequence of the working of intra-area adjustment through the real exchange rate channel.

Since nominal interest rates are set for the euro area as a whole, higher than average inflation rates in this economy would imply lower than average real interest rates. This would feed excess demand and create further inflationary pressures. That is, at a time when domestic demand would need to be brought in line with potential, national real interest rates would be providing an additional boost in the opposite direction. Real interest rates would thus tend to exhibit a potentially destabilising pro-cyclical behaviour.

56 The preference for REER deflated by unit labour costs of the total economy results from the assumption that wage growth relative to productivity is likely to be a key channel of adjustment. Different cost and price competitiveness indicators tend to move broadly together.

57 Conceptually, real interest rates are derived by adjusting nominal interest rates for expected inflation. As the expected inflation is not observable it has to be estimated. Several approaches to this estimation are possible. In the following, for simplicity and due to data availability real interest rates are obtained by adjusting the appropriate nominal interest rates by core HICP inflation (HICP excluding energy and unprocessed food). Other than its simplicity a further rationale for using such a proxy of inflation expectations is that, as noted in Section 4.5, inflation is typically a persistent process. It can then be argued that domestic inflation expectations would tend to follow developments in measured inflation relatively closely.
term and short-term real interest rates. Portugal, Italy, Spain and Greece had also negative short-term interest rates. With the exception of Italy, domestic demand has been buoyant in these Member States since summer 2003.

An additional concern sometimes mentioned in this context is the possibility of a “hard-landing”. For example, a country that has gone through a period of overheating and is entering the downward phase of the cycle might have to face a tightening of area-wide monetary conditions in response to contemporaneous stronger growth in the less cyclically advanced countries. The implication is that for some countries the downturn would be more pronounced than if monetary policy had been less accommodating earlier on. This mechanism might have contributed to subdued growth in the Netherlands and Portugal, which were cyclically advanced countries in the last upswing and witnessed a belated and weak rebound in 2003/04.

5.3.2 The role of economic policy

Rigid economic structures may have inhibited the effectiveness of the competitiveness rate channel in balancing growth and inflation differences within the euro area. This channel is more powerful the more responsive both costs and prices are to changes in demand and the more responsive economic activity is to changes in prices. By simulating an empirical model of the euro area, Angeloni and Ehrmann (2004) show that stickiness in inflation and output propagates economic differences across Member States.

Competition and a high share of imports and exports are conducive to the effectiveness of variations in price competitiveness as adjustment mechanism. Furthermore, the more open and integrated an economy is, the more important are international and euro-area price developments for domestic inflation and thus the less pronounced is the difference in the real interest rate. That is, the smaller is also the probability that country-specific price developments become entrenched in inflation expectations and the less powerful is the real interest rate channel that causes deviating growth performances. Policy measure that increase market flexibility therefore not only improve the Member States’ capability to adjust to economic shocks, they contribute also to the smooth functioning of EMU.

A further means of adjustment is through changes in fiscal policy, with Member States making discretionary changes to government revenue and spending plans in response to changing fiscal conditions. Budget deficits to GDP ratio deteriorated in all except two euro-area Member States between 2000 and 2004 in absolute terms and in all except four countries in cyclically-adjusted terms. The exceptions are Spain and Austria in absolute terms and these two countries plus Belgium and Portugal in cyclically-adjusted terms. Since changes in interest rates also affect budgetary figures, the most widely measure of the fiscal stance is the cyclically-adjusted deficit excluding interest payments. This measure is also called cyclically-adjusted primary balance and indicates the discretionary policy effort.

Graph 51 shows a negative relationship between the change in the cyclically-adjusted primary balance in the period 2000-2004 and the output gap in 2004, meaning that those countries with a more expansionary fiscal stance in 2000-2004 had a smaller output gap in 2004. It is highly significant also for the deterioration in the output gap between 2000 and 2004 and even if the size of the output gap in 2000 is controlled for. Apparently, Greece as the only country with a positive output gap and with the most expansionary fiscal stance in the euro area has a strong impact on the result. However, eliminating Greece and Luxembourg from the panel still confirms the insight that more expansionary fiscal policy reduces the output gap. In dependence on the panel used, the coefficient is between 0.5 and 0.6, indicating that
expansionary fiscal policy yields a sizeable impact without, however, avoiding a non-negligible deterioration of public finances.

5.4 Conclusions

It appears difficult to draw together a simple story regarding the reasons behind different performance in euro area economies in the latest upswing. This is in part due to the relative infancy of the latest upswing – there is just a full year’s data since growth picked up in the euro area and many of the calculations presented above are reliant upon forecasts. Nevertheless, a number of tentative conclusions emerge.

• Those countries which performed well in previous upturns have not grown strongly in the current upswing. In the cases of Ireland and Finland such a conclusion is dependent upon assuming a significant increase in potential output in recent years; both countries having seen actual GDP grow more strongly since the latest upswing began.

• Performance in the latest upswing appears to be more dependent upon performance during the previous trough, with some countries – notably the Netherlands and Portugal still experiencing restricted growth as a consequence of previous overheating.

• Countries with the strongest growth in the euro area benefited from strong domestic demand and revived activity in the service economy whereas growth in the laggards was mainly driven by external demand and industrial activity.

• Inflation differences are broadly in line with growth differences. Adjustment via the real exchange rate channel seems to have had only limited impact. Low inflation countries recorded a stimulus from external demand but remained at the lower end of the growth spectrum. The real interest rate channel might have boosted domestic demand in high growth/inflation countries, amplying the differences.

• The large role for the real interest rate channel relative to the exchange rate for growth and inflation differences during the last year reflects structural rigidities that reduce the information content of relative prices as well as the adjustment of both demand and output to price signals.
References


CEPS (2003), „Adjusting to leaner times“, 5th Annual report of the CEPS macroeconomic policy group, Center for European Policy Studies, Brussels.


