

The background of the cover features a stylized map of Europe in shades of orange and yellow. Overlaid on the map are several white, five-pointed stars of varying sizes, arranged in a pattern similar to the European Union flag. The overall color scheme is warm and monochromatic, with a gradient from light yellow at the top to darker orange at the bottom.

# **QUARTERLY REPORT ON THE EURO AREA**

**Volume 3 N° 1 (2004)**

**Highlights in this issue:**

- Recent economic developments and short-term prospects.
- Explaining the weakness of private consumption in the euro area.
- Focus: the impact of the euro appreciation on economic activity.

## Table of contents

EDITORIAL.....	3
I. ECONOMIC SITUATION IN THE EURO AREA.....	5
<i>RECENT ECONOMIC DEVELOPMENTS AND SHORT-TERM PROSPECTS.....</i>	<i>5</i>
<i>EXPLAINING THE WEAKNESS OF PRIVATE CONSUMPTION IN THE EURO AREA.....</i>	<i>13</i>
II. FOCUS: THE IMPACT OF EURO APPRECIATION ON ECONOMIC ACTIVITY.....	21
III. REFERENCES TO FURTHER WORK .....	34
IV. KEY INDICATORS FOR THE EURO AREA.....	36



## EDITORIAL

Following a period of stagnation, the euro area economy started to turn around in the middle of last year. In line with the scenario embodied in the Commission's Autumn 2003 Economic Forecast, recovery in the euro-area economy is slowly gaining momentum.

Some recent economic indicators have, however, come in slightly below expectations. Together with the headline grabbing rise in the euro to above its introductory level 5 years ago, these have caused some anxiety about the euro-area's near term prospects. They have also rekindled memories of past recoveries having been slow and marred by temporary setbacks.

Against this background, this Quarterly Report assesses the most recent developments and economic indicators. These suggest that the recovery in the euro area economy will remain fairly moderate over the months to come. Following the initial export driven phase of the recovery, we now seem to be heading towards a greater domestic contribution to growth.

In this context, it is particularly welcome news that the long-awaited revival in investment expenditure seems to be materialising. Coupled with favourable monetary and financial conditions, with both short- and long-term real interest rates remaining at historical lows, and the gradual restoration of profit margins, it suggests that the recovery may gather strength. A turnaround in investment would be of particular importance in light of the leading role played by investment in the current cycle. Less positive is that private consumption growth - a topic looked at in detail in this report -, has been more hesitant. The slow growth in households' purchasing power as inflation has proved stickier than expected is one factor. Another

one is that, although gradually firming, consumer confidence remains low.

With indicators on the domestic front being still somewhat mixed, it is comforting to note that survey indicators suggest that exports will continue to buttress growth in the months ahead. Indeed, the analysis presented in this report's focus section on the impact of the strong euro on growth suggests that buoyant world demand will more than offset losses in market shares due to deteriorating competitiveness. Part of the explanation seems to be that euro-area exports are more sensitive to changes in income abroad than in prices. Furthermore, while the negative effect of the euro appreciation on competitiveness and profit margins has already come to be felt, the positive effects of the strong euro on households' purchasing power are to a large extent still in the pipeline and can be expected to gain importance over the coming months.

All in all, while some less positive than hoped for developments illustrate the still high uncertainty surrounding the strength and the nature of the upswing, the recovery of the euro area remains on track. To use a metaphor, the first green shoots of recovery that I referred to last autumn have definitely become longer but some more time is needed before we will see the blossom.

Against the still uncertain economic background, policy makers have a key role to play in supporting the recovery. First, by maintaining sound macroeconomic conditions which provide the very platform for any durable recovery. Furthermore, by implementing the structural reforms aimed at increasing employment and productivity growth and therewith our growth potential and future living standards.

By leading the way, policy makers can shore up confidence among businesses and

households alike and trigger job-creating investment and a recovery in private consumption. In short, policy makers have to match their words by action and get serious about implementing more forcefully the kind of policies advocated in the Community's Broad Economic Policy Guidelines.

This basic policy message was once more underlined by the Spring European Council gathering in Brussels over the weekend.

Pedro SOLBES

MEMBER OF THE EUROPEAN  
COMMISSION



## I. Economic situation in the euro area

Following a gradual turnaround in economic activity in the euro area in the summer of last year, recent data on economic activity have sent somewhat mixed signals as regards the pace of the recovery in the near future. Real GDP growth slowed marginally in the fourth quarter of 2003, on the back of persistent weakness in private consumption. Business confidence has marked a pause and the appreciation of the euro appears to increasingly weigh on external competitiveness. However, the level of business confidence remains relatively high, consumer confidence is strengthening gradually, the investment slump may have come to an end and world demand is buoyant. Overall, the recovery remains on track but the recent softening of some indicators suggests that short-term downside risks may have increased. The persistent weakness of private consumption is a source of concern. The lacklustre performance of household spending in recent years can partly be explained by sluggish growth in disposable income and lagged adverse wealth effects. However, consumption appears to be weaker than what normally would be expected given the level of its main macroeconomic determinants. This could be suggestive of negative confidence effects linked to the deterioration of public finances in some Member States, to the increasing awareness of the challenges posed by population ageing and to the uncertainty generated by a very slow structural reform process.

### 1. Recent economic developments and short-term prospects<sup>1</sup>

#### Fourth quarter real GDP growth marginally slower than expected despite a strengthening of industrial activity

Quarter-on-quarter GDP growth decelerated marginally from 0.4% in the third quarter to 0.3% in the last quarter of 2003. The deceleration was mainly the consequence of a deterioration in net

exports in a context of persistently weak private consumption. Domestic demand picked up markedly but the increase mainly reflected a strong contribution of changes in inventories. Following a sharp, and probably partly unintended, inventory draw-down in the third quarter, enterprises replenished their stocks in the final months of 2003. Investment registered its first increase after three quarters of contraction but private consumption remained almost flat. After a surge in the third quarter, exports of goods and services increased only marginally in

Table 1: Euro-area growth components

	03 Q1	03 Q2	03 Q3	03 Q4	Average 2003	Carryover in 2004
<b>% change on previous quarter, volumes<sup>(1)</sup></b>						
GDP	0.0	-0.1	0.4	0.3	0.4	0.4
Private consumption	0.4	0.0	0.2	0.1	1.0	0.2
Government consumption	0.5	0.6	0.6	0.6	1.9	0.9
Gross fixed capital formation	-0.9	-0.4	-0.2	0.6	-1.2	0.3
Changes in inventories (% of GDP)	0.2	0.3	-0.2	0.5	0.2	0.3
Exports of goods and services	-1.5	-0.9	2.3	0.2	0.0	1.1
Imports of goods and services	-0.6	-0.4	0.8	2.1	1.5	1.9
<b>% contribution to change in GDP</b>						
Private consumption	0.2	0.0	0.1	0.0	0.5	0.1
Government consumption	0.1	0.1	0.1	0.1	0.4	0.2
Gross fixed capital formation	-0.2	-0.1	0.0	0.1	-0.2	0.1
Changes in inventories	0.2	0.1	-0.4	0.7	0.3	0.3
Net exports	-0.4	-0.2	0.6	-0.7	-0.6	-0.2

(1) Annual change in % for carryover.

Source: Commission services.

<sup>1</sup> The cut-off date for the statistics included in this issue was 23 March 2004.

Table 2: Selected euro area and national leading indicators, 2003

	SENT. IND <sup>1)</sup>	BCI <sup>2)</sup>	OECD <sup>3)</sup>	PMI <sup>4)</sup>	Reuters Ser <sup>5)</sup>	IFO <sup>6)</sup>	NBB <sup>7)</sup>	ZEW <sup>8)</sup>
Long-term average	96.2	0.0	2.9	52.2	54.2	95.5	-13.0	43.8
Trough in latest downturn	94.6	-1.2	-3.5	42.9	46.7	87.3	-26.5	-10.4
May 2003	94.7	-0.66	0.5	46.8	47.9	91.7	-18.3	18.7
June 2003	94.8	-0.65	1.5	46.4	48.2	93.2	-26.5	21.3
July 2003	94.7	-0.80	2.8	48.0	50.2	95.2	-19.3	41.9
August 2003	95.0	-0.47	4.0	49.1	52.0	96.2	-14.3	52.5
September 2003	95.3	-0.44	5.6	50.1	53.6	98.0	-14.5	60.9
October 2003	95.6	-0.22	6.5	51.3	56.0	99.8	-10.6	60.3
November 2003	96.0	0.05	7.0	52.2	57.5	101.0	-8.8	67.2
December 2003	95.6	-0.02	6.9	52.4	56.6	102.5	-6.9	73.4
January 2004	96.0	0.11	6.3	52.5	57.3	102.9	-5.6	72.9
February 2004	96.0	0.01		52.5	56.2	100.4	-6.8	69.9
March 2004								57.6

1) Economic sentiment indicator, DG ECFIN. 2) Business climate indicator, DG ECFIN. 3) Composite leading indicator, six monthly change. 4) Reuters Purchasing managers index, manufacturing. 5) Reuters Services purchasing manager index. 6) Business expectations, West Germany. 7) National Bank of Belgium indicator for manufacturing. 8) Business expectations of financial market analysts, Germany.

the fourth quarter. In the meantime, imports picked up substantially, partly as a result of the inventory build-up.

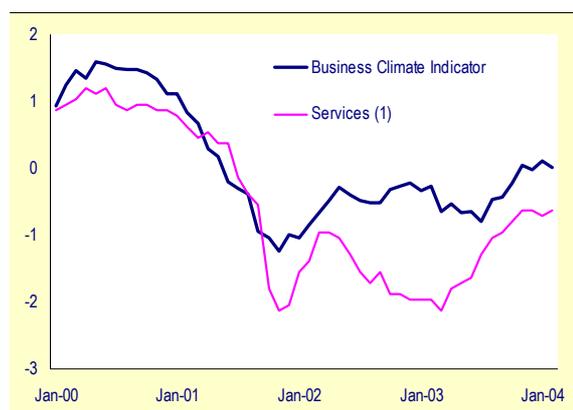
The slight deceleration of GDP is surprising in the light of the strengthening of industrial activity in the last quarter of 2003, as measured both by the industrial production index and production developments in business surveys. Looking at the sectoral breakdown of value added, the slight slowdown in GDP can be traced back to services and, more specifically, to the wholesale-retail, communication and transport sector and to the financial services and business activities sector. In line with developments in industrial production indices, growth in industrial value added picked up speed in the fourth quarter, increasing by 0.7% on the previous quarter.

**Confidence indicators have begun to send mixed signals.**

Business confidence indicators have recently begun to send somewhat mixed signals. After four months of improvement, the Business Climate Indicator (BCI) weakened somewhat in December, rebounding in January only to suffer another modest setback in February (Graph 1). The BCI is now back at its long-term average. Reuters manufacturing PMI also marked a pause in January and February. In the service sector, after a rapid and steady improvement between March and November 2003, confidence as measured by ECFIN surveys has remained stable since last December. Reuters PMI for the service

sector has moved on a very mild downward path over the past three months.

Graph 1: Business confidence, euro area



(1) Normalised series.  
Source: Commission services.

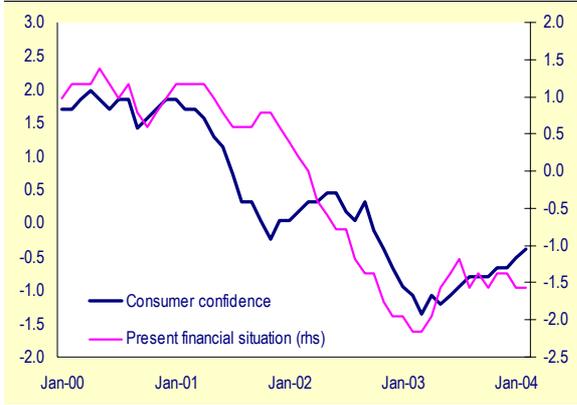
The recent pause in business confidence mainly reflects an increase in enterprises' concerns regarding present activity and demand conditions. Production expectations have generally remained on an upward trend. However, production expectations in the manufacturing sector have recently fluctuated significantly around this upward trend. This is probably an indication of some worries regarding the future external value of the euro and the timing of the upturn in domestic demand.

In any event, the current level of business indicators remains consistent with an expansion of production. For instance, Reuters PMI



indicators, in both the manufacturing and the service sectors, still stand well above the 50 level which separates growth from contraction.

Graph 2: Consumer confidence, euro area (1)



(1) Normalised series.  
Source: Commission services.

Recent developments in confidence have been more upbeat on the consumer side. After stagnating in December, household sentiment renewed its upward trend in January and February. This is quite welcome in a context of sluggish private consumption. Nevertheless, the improvement in confidence in the past months should be put in perspective. It has been essentially driven by a more optimistic assessment of the general economic situation and receding unemployment worries. As shown in Graph 2, households have so far reported only limited improvements in their personal financial situation, a factor which may have weighed on their spending decisions.

Overall, recent confidence indicators point to an increase in uncertainty in the euro area which is also reflected in the most recent hard data. After two months of near stagnation, industrial production fell by 0.4% in January relative to the month before with year-on-year growth slowing to 0.6%. In contrast, data on new orders and on retail sales remain quite encouraging. The euro-area index of industrial new orders increased by 5.7% in December, with year-on-year growth surging to above 13%. Retail sales rose significantly in January, with year-on-year growth accelerating to 2.4%.

### The recovery remains on track but risks have increased

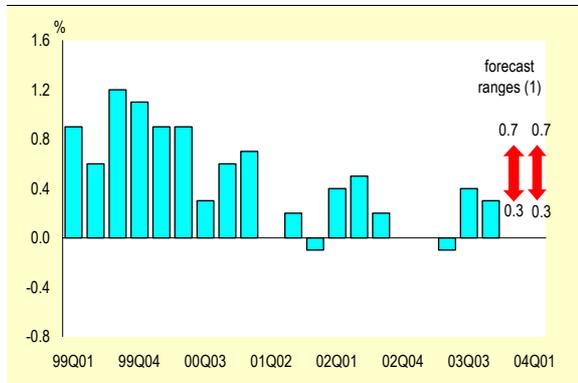
Despite the recent setback in some economic indicators, the recovery is still on track. Reasons for cautious optimism can be found both in the domestic and in the external sector.

In the domestic sector, there are early signs that the investment cycle has bottomed out, suggesting that balance sheets constraints in the corporate sector have eased. A turnaround in investment is of particular importance in the light of the leading role played by this component of domestic demand in the current cycle.

The external sector remains supportive of growth. Survey indicators suggest that exports will continue to be a source of expansion in the next few months, as buoyant world demand more than offsets losses in market shares due to deteriorating competitiveness. Furthermore, although the negative impact of the euro on competitiveness and profit margins has been visible for some time now, the positive effects of the strong euro on households' purchasing power are traditionally slow to materialise and will gain in importance in the months to come.

Finally, monetary and financial conditions remain supportive of the economic recovery. Both short-term and long-term real interest rates are at historical lows. Despite the appreciation of the euro, monetary conditions are accommodating.

Graph 3: GDP growth, euro area (1)  
(quarter-on-quarter growth)



(1) ECFIN's indicator-based forecast model.  
Source: Commission services.

The outlook is for a continuation of the recovery. According to ECFIN's indicator-based model, quarter-on-quarter GDP growth in the euro area should be in a range of 0.3% to 0.7% in the first quarter of 2004 (see Graph 3). The forecast is unchanged compared to the one presented in the December Quarterly Report on the Euro Area. For the second quarter of 2004, the model predicts the same range of 0.3% to 0.7%.

While there continues to be both upside and downside risks to the short-term outlook, recent developments suggest that downside risks may have increased.

Upside risks include a stronger-than-expected expansion of world demand and the possible release of some pent-up demand in the euro area following a long period of sluggish growth in domestic spending.

Some downside risks are attached to the sustainability of the US recovery. US growth has been partly fuelled by an extraordinarily large policy impulse whose impact will fade. Another source of downside risks relates to the possibility of a further sharp appreciation of the euro that would push the external value of the currency significantly above its equilibrium value.

On the domestic side, balance sheet pressures have eased off but there may still be a need for further corporate adjustment. More critically, there is still significant uncertainty as to the timing of the recovery in consumer spending. In this regard, the impact of the recent terrorist attacks in Madrid is difficult to assess at this juncture and will have to be monitored carefully in the months ahead.

### **Further evidence of solid growth in the world economy**

The US economy continues to be one of the main engines of the world economy. Growth reached 3.1% in 2003 on the back of a strong performance during the second half of the year. The expansion of the US economy has been much helped by an accommodative monetary policy and a marked fiscal expansion, although at the cost of a very sharp deterioration of public finances. In addition, persistently strong productivity gains have facilitated balance sheet

improvements in the corporate sector, allowing a rapid rise in profit margins and underpinning the recovery of business investment. Short-term growth prospects appear solid although the economy's internal and external balances are still a cause for concern where the medium-term sustainability of growth is concerned.

In Japan, a recovery has taken place since the second quarter of 2002. In the first three quarters of 2003, the economy expanded by an average annualised 2.7%. Growth accelerated markedly in the fourth quarter to an annualised rate of 6.4%, a performance unmatched since the early 1990s. The recovery is also becoming more broad-based with households, the corporate sector and trade all contributing positively to growth in the last quarter. Leading indicators and confidence surveys signal a continuation of the upturn in 2004. Better prospects for Japan's key exports markets, particularly in Asia, and renewed strength in domestic demand are behind this positive development.

The recovery of the world economy is also underpinned by robust growth in emerging markets. The rapid expansion of emerging Asian economies, spearheaded by the strong performance of the Chinese and Indian economies, shows no signs of abating. The recovery has so far been more subdued in Latin America but the region's short-term prospects are improving on the back of strong US growth and improved investor sentiment towards emerging markets. Finally, countries joining the EU have succeeded relatively well in withstanding sluggish activity in the euro area, their main trading partner. Partly thanks to ongoing structural reforms and strong domestic demand, activity in acceding countries has picked up speed, with GDP growth accelerating from 2.5% in 2002 to an estimated 3.6% in 2003.

The strength of the world economy is reflected in estimates of world trade. According to the indicator constructed by the CPB Netherlands Bureau for Economic Policy Analysis, world imports have rebounded strongly since last summer and were growing in real terms by over 10% y-o-y in December last year.



Graph 4: World imports  
(year-on-year % changes in volume)



Source: CPB Netherlands Bureau for Economic Policy Analysis.

### The strong euro is weighing on competitiveness but trade remains supportive

Euro-area exporters have been exposed to a considerable loss in price competitiveness during the past two years. Since its trough in October 2000, the real effective exchange rate of the euro has appreciated by 24 to 29% depending on the price indicator considered. Nevertheless, the appreciation should be put in perspective: depending on the real exchange rate concept used, the euro is currently only between 1 and 7% above its average value over the past 30 years. Furthermore, the negative competitiveness impact of a stronger euro has so far been largely offset by a brisk recovery of world trade.

National account data show a strong negative contribution of net trade in the fourth quarter of 2003 but this result should be put in perspective.

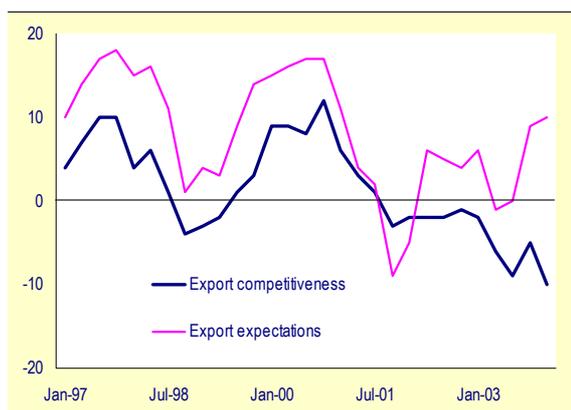
- First, weak export growth had probably more to do with the correction of an excessive rebound in exports in the third quarter than with the negative effect of losses in competitiveness.<sup>2</sup>
- Second, ECFIN's manufacturing survey has so far continued to display strong readings in terms of export expectations. As shown

<sup>2</sup> On the basis of developments in the real effective exchange rate and world demand, the export equation presented in the Focus Section of the present report predicts, respectively, slower and faster export growth than actually observed in the third and the fourth quarters.

in Graph 5, manufacturers have reported a sharp deterioration in competitiveness in the past months. However, export expectations strengthened markedly in the fourth quarter of 2003 and edged up slightly further in the first months of 2004. Interestingly, this optimistic picture of export orders holds even for those industrial branches which are said to be more vulnerable to variations in the euro/US dollar exchange rate such as equipment goods.

- Third, the negative contribution of trade to GDP growth in the fourth quarter of 2003 was magnified by a surge in imports which partly reflects the strong build-up of inventories.

Graph 5: Exports in manufacturing surveys



Source: Commission services.

As analysed in detail in the Focus Section of this report, several factors have contributed to dampening the response of euro-area manufacturers to the appreciation of the euro. First, exporters have squeezed their profit margins to contain losses in price competitiveness. This is reflected in a sharp deceleration of export prices. Second, although changes in competitiveness do matter for the export performance of euro-area companies, they tend to matter much less than changes in world demand. There is some evidence that euro-area exporters are specialised in products which are more sensitive to changes in income than to changes in prices. Finally, empirical analyses suggest that, although changes in exchange rates do impinge on enterprises' expectations, there is no evidence that they lead to excessive

confidence reactions (overshooting) that could amplify the direct impact of a strengthening currency on activity.

### The sustainability of the recovery hinges on a pick-up of domestic demand

Whereas, historically, a standard feature of the euro-area business cycle is a strong contribution of exports in the early stage of a recovery, the sustainability of the ongoing upswing hinges on a gradual pick-up of domestic demand during the course of 2004. In this respect, the recent signs of a pick-up in investment are encouraging although the outlook for private consumption remains surrounded by substantial uncertainty.

Graph 6: Investment growth, euro area  
(non-annualised q-o-q changes in %)



Source: Commission services.

Recent developments suggest that the investment slump is coming to an end. After a progressive slowdown in the speed of contraction in the second and third quarters, investment increased by 0.6% quarter-on-quarter in the last quarter of 2003. The rebound appears broad-based in the sense that it is observable in most of the Member States for which data are available. Furthermore, it is not just a result of an upsurge in residential construction. The information available on the breakdown of investment by branches in some Member States indicates that productive and equipment investment both increased in the fourth quarter. Although corporate debt levels remain high, the observed pick-up in corporate spending supports the idea that that balance sheet constraints in the corporate sector have eased. The scenario of a gradual firming of investment is

also in line with the surge in industrial new orders registered in December in the electronic and transport equipment sectors.

In contrast, recent developments in consumer spending have been disappointing. Private consumption increased by 0.1% in the fourth quarter, a further marginal slowing from the mere 0.2% growth registered in the previous quarter. Although Germany, which reported its fourth successive contraction in consumption, weighed on the euro-area performance, the sluggishness of household spending was broad-based. Excluding Germany, quarter-on-quarter growth in euro-area consumption slowed from 0.4% in the third quarter to 0.3% in the fourth quarter.

Recent developments in private consumption partly reflect sluggish growth in disposable income as wage income has been constrained by stagnating employment. Furthermore, inflation proved to be stickier than expected in 2003, limiting household gains in purchasing power. Whilst the strong euro has entailed noticeable gains in the terms of trade, these gains have so far been slow to materialise at the final consumption level. The pass-through of exchange fluctuations into import prices is relatively fast in the euro area but its speed decreases along the production chain and tends to be slow for consumer prices, with estimated lags of up to three years.

In addition to weak developments in disposable income, and as discussed in more details in Section 2 below, the sluggishness of household spending in 2003 may also reflect the lagged impact of the bursting of the equity price bubble. Nevertheless, private consumption appears to be, at this juncture, somewhat weaker than what could be expected on the basis of traditional macroeconomic determinants. This excessive weakness may in part reflect ongoing distortions in perceived inflation. It may also be a consequence of negative confidence effects linked to deteriorating public finances in some Member States as well as concerns related to the sustainability of pension systems and the slow progress of structural reforms. Hence, although the outlook remains for a gradual recovery in consumer spending throughout 2004, the strength and the timing of the revival of private consumption is surrounded by substantial uncertainty.



The recent terrorist attacks in Madrid have only added to the uncertainty surrounding consumer spending. No data are yet available on the impact of these events on household confidence in the euro area. Given the global nature of the terrorist threat, possible consequences may not be restricted to Spain. On the other hand, the US experience suggests that terrorist attacks may have only a transitory impact on confidence indicators and only very limited impact on consumer spending.

### The recent drop in inflation mainly reflects base effects

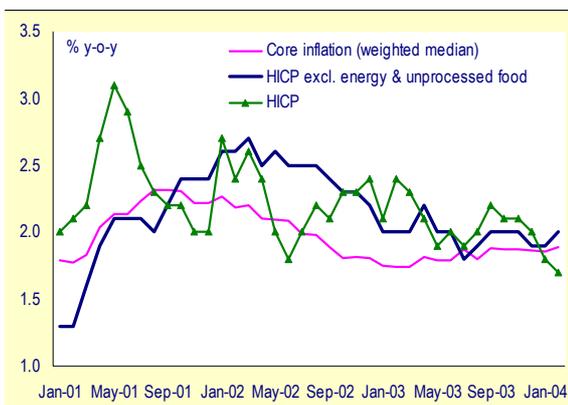
Headline inflation has dropped in the past two months. It fell marginally from 2.0% in December 2003 to 1.9% in January 2004 and more substantially to 1.6% in February. The decrease is largely attributable to a strong base effect in the energy component and the continued unwinding of temporarily high inflation in unprocessed food. The deceleration of inflation in these two sectors more than offset the unfavourable effects of price increases in the health sector and hikes in indirect taxes. The base effect in the energy component is a consequence of the sharp rises in oil prices registered early last year before the start of the war against Iraq. It is estimated to have continued to exert strong downward pressure on annual inflation rates in March but is likely to fade later on in the spring, as energy price inflation last year declined rather sharply after the start of the war against Iraq.

Recent developments in core inflation continue to point to some underlying stickiness. Growth in HICP excluding unprocessed food and energy remained unchanged at 1.9% year-on-year in January 2004 before edging slightly up to 2.0% in February. The weighted median, an alternative measure of core inflation that has the property of letting the data decide which extreme price variations are excluded each month, was for the sixth consecutive month unchanged at 1.9% y-o-y in February 2004.

Since it is mainly base effects in the most volatile components of HICP inflation that are exerting downward pressure on the headline rate, core inflation is likely to show much less volatility and only decrease gradually in the months ahead in

response to the still relatively subdued demand conditions, a pick-up in productivity and the past appreciation of the euro.

Graph 7: Inflation in the euro area



Source: Commission services.

### Labour market remarkably resilient

Employment has remained largely stable in the euro area since the second quarter of 2002 and business surveys do not suggest any significant strengthening of the labour market in the opening months of 2004. ECFIN's surveys paint a moderately upbeat picture: after a softening at the end of 2003, enterprises reported improvements in the employment outlook in January and February both in the manufacturing and in the service sectors. However these developments should be interpreted with caution as recent readings of employment in Reuters surveys have been less encouraging, pointing to a deterioration of employment, in particular in the service sector.

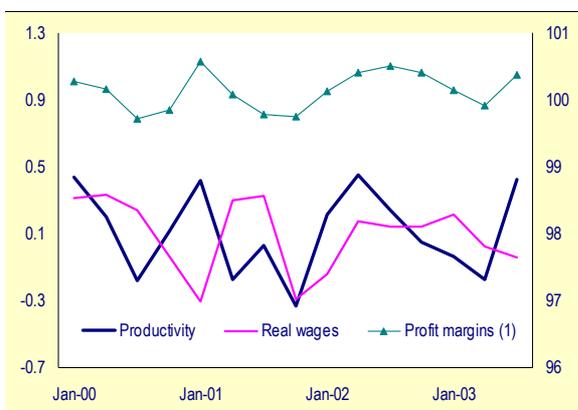
Despite the overall stagnation of employment in the past year, it is important to stress the remarkable overall resilience of the labour market in the current downturn. The unemployment rate has remained stable at 8.8% since March last year. It remained on a downward trend during the early stages of the downturn in 2001 and is now only 0.6 percentage point above its level at the peak of the cycle at the end of 2000. Such an increase is quite muted compared with the deterioration observed during the recession of the early 1990s. Whereas the two cyclical downswings have given rise to similar levels of

deterioration in the output gap, the unemployment rate increased by more than 2 percentage points between the end of 1991 and the end of 1994.

There are some preliminary signs that this increased cyclical resilience of employment has begun to be acknowledged by households. Between spring 2001 and spring 2003, concerns related to unemployment in household surveys rose rapidly and more sharply than would have been warranted by the observed deterioration in unemployment. However, since last June, households' assessment of employment prospects has improved rapidly, despite a stagnating unemployment rate. The trend can probably be interpreted as a correction to an overly pessimistic appraisal of the unemployment outlook in the early stages of the downturn.

The mirror image of the relative resilience of the labour market in the latest downturn has been sluggish growth in labour productivity. The euro-area's productivity performance was particularly weak by historical standards in 2001. It recovered somewhat in 2002, before stalling again at the end of 2002 and during the first half of 2003. The pick-up in activity in the third quarter of 2003 was accompanied by a slight acceleration of productivity (no data as yet available for the fourth quarter).

Graph 8: Labour productivity, real wages and profit margins, euro area (q-o-q growth unless otherwise specified)



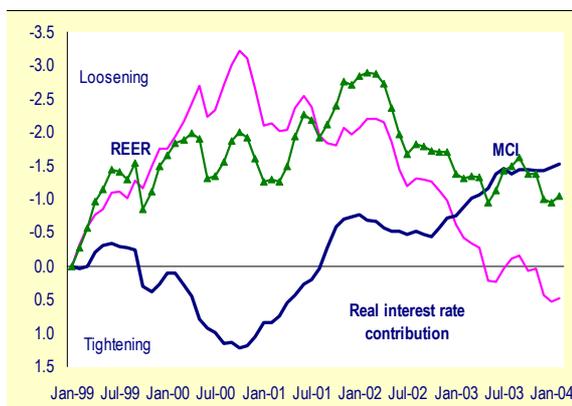
(1) Inverted real unit labour costs – index 2000=100  
Source: Commission services.

In terms of profitability, these positive productivity developments have been accentuated by muted progress in real wages. Reversing three quarters of steady deterioration, profit margins (as measured by real unit labour costs) rose in the third quarter (see Graph 8). However, the aggregate positive picture for profitability conceals major sectoral disparities. Sectoral data available on a quarterly basis suggest that further profitability adjustments would be necessary in the manufacturing industry and in the broad retail transport and communication sector.<sup>3</sup>

**Monetary and financial conditions are supportive**

ECFIN's monetary conditions index (MCI) suggests that monetary conditions in the euro were tightened somewhat in the last quarter of 2003 but remain accommodative.<sup>4</sup>

Graph 9: Monetary conditions in the euro area Index Jan 1999 = 0 (inverted scale)



Source: Commission services.

The MCI increased in the final months of 2003, as record low real short-term interest rates did not fully offset the appreciation of the euro real exchange rate. It then remained broadly stable in January and February. Although there are no MCI data as yet available for March, a slight loosening of monetary conditions may have taken place that month on the back of a weakening of the exchange rate. After reaching a peak of close

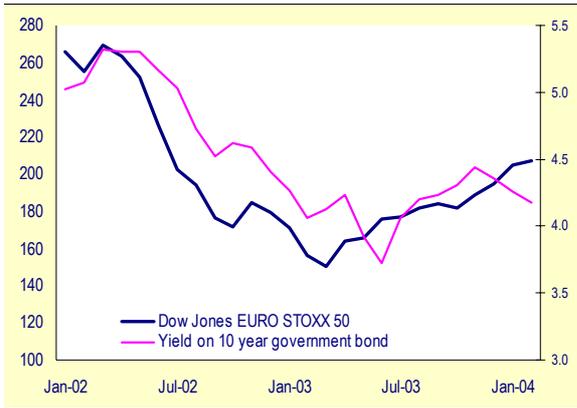
<sup>3</sup> Quarterly national accounts for the euro area provide some sectoral data for 6 broad sectors.

<sup>4</sup> The MCI tries to capture the combined impact on economic activity of changes in the real effective exchange rate and the real short-term interest rate.



to US\$ 1.29 in mid-February, the euro eased subsequently somewhat against the dollar. Mid-March, the euro was trading at about US\$1.23.

Graph 10: Stock prices and long-term interest rates, euro area (Index = 0 in Jan 1999 - Inverted scale)



Source: Commission services.

There has been a further improvement in long-term financing conditions in the past months. After reaching a peak in mid-November last year, long-term government bond yields have remained on a moderate downward slope in the past few months. Mid-March 2004, yields on euro-area 10-year bonds were about 60 basis points lower than 4 months earlier. The decrease reflects a shift in market participants' expectations in terms of short-term interest rates, with the next tightening of monetary policy now expected to take place later than initially anticipated. Some disappointment with recently released economic data and concerns about the impact of the euro appreciation on activity both seem to have contributed to the shift in expectations. In addition, developments in the break-even inflation rate suggest that market participants' long-term inflation expectations have decreased slightly in the euro area over the last few months.

Financing conditions in the private sector have also benefited from a loosening of credit standard in the banking sector. The ECB's latest bank lending survey points to a continued fall in the share of banks reporting a tightening of corporate credit standards. In the meantime, the share of banks reporting a tightening of household credit standards has remained low.

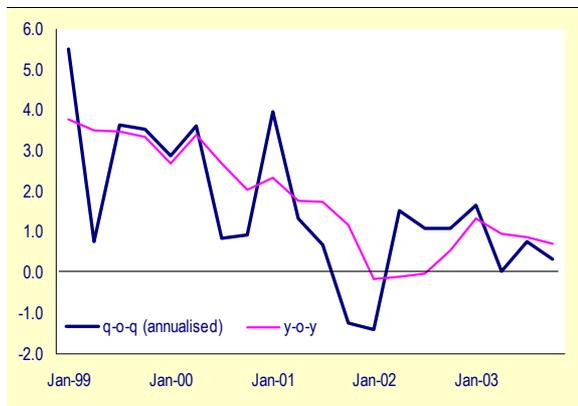
Stock prices have been on a clear upward trend since March 2003, recouping about a quarter of the losses incurred since the bursting of the equity bubble in 2000. Mid-march 2004, despite a significant drop in the wake of the Madrid terrorist attacks, euro-area equity prices, as measured by the Dow Jones EURO STOXX index, were trading 50% above their low of a year before. In the past few months, equity markets have been supported by declining long-term interest rate and good corporate earnings announcements.

## 2. Explaining the weakness of private consumption in the euro area

### Recent developments in private consumption

Developments in private consumption have been somewhat disappointing over the past three years. After an episode of contraction towards the end of 2001 and the beginning of 2002, real private consumption picked up speed in 2002. It expanded by 1-1.5% in annualised terms until the first quarter of 2003 and became the major and almost sole source of growth in the euro area over this period. However, household spending has stalled again since spring 2003, growing by less than 0.5% in average annualised terms during the last three quarters of last year.

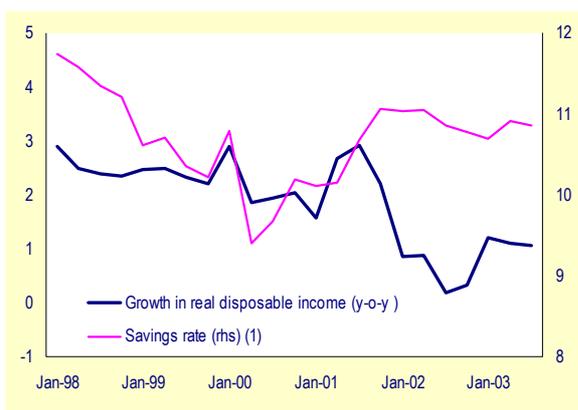
Graph 11: Growth in real private consumption, euro area



Source: Commission services.

Graph 12 shows growth in real disposable income and developments in the euro-area saving rate. Given that Eurostat does not yet provide quarterly household disposable income data for the euro area as a whole, the series used is based on estimates taken from the Area-Wide Model dataset built by Fagan et al (2001).<sup>5, 6</sup>

Graph 12: Households' real disposable income and saving rate, euro area



(1) as a share of household disposable income.  
 Source: Fagan et al. (2001) and Commission services.

Two conclusions are suggested by the graph. First, given that disposable income has traditionally played an important role in explaining consumption behaviour, the main explanation for the weakness of private consumption in the latest downturn is likely to be sluggish growth in real disposable income. Second, the subdued performance of private consumption may well have been aggravated by adverse developments in saving behaviour. A significant rise in the household savings rate took place in the second half of 2000 and in 2001. After a modest decline in 2002, the savings rate edged slightly up again in 2003. Furthermore, developments in households' savings behaviour in the past three years stand in sharp contrast to the continuous decrease in the savings ratio registered during most of the previous decade. This past decrease added about 0.8 of a

<sup>5</sup> Fagan, G., Henry J. and R. Mestre (2001), 'An area-wide model (AWM) for the euro area', *ECB Working Paper No. 42*, January.

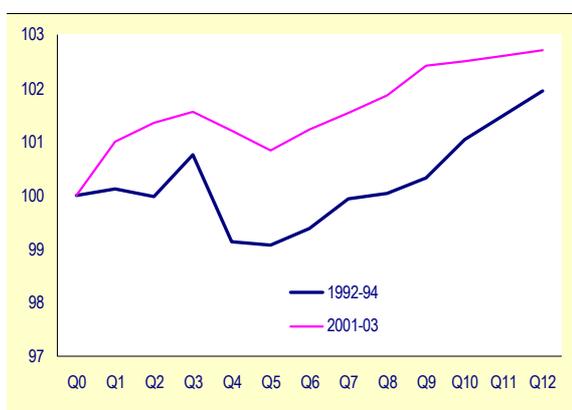
<sup>6</sup> The AWM dataset only includes data up to 2002. Estimates for the first three quarters of 2003 were constructed at DG ECFIN on the basis of data available at the Member States' level.

percentage point to annual growth in consumption during the second half of the 1990s.

**A comparison with the 1992-93 recession.**

It is interesting to put the weakness of private consumption in perspective by comparing present cyclical developments with the recession of the early 1990s.

Graph 13: Household consumption in cyclical downturns, euro area (index 100 in Q0)



Q0 corresponds to the peak preceding the beginning of the downturn (92 Q1 for the 1992-93 recession and 2000 Q4 for the 2001-03 downturn)  
 Source: Commission services.

As shown in Graph 13, household consumption was slightly more resilient during the 2001-03 downturn than between 1992 and 1994. The deterioration in the output gap was similar over the two periods. In average annual terms, private consumption increased by 0.9% between 2000Q4 and 2003Q4 and by only 0.6% during a period of similar length in the 1992-1994 downturn. However, the relatively stronger consumption in the latest downturn is a feature of the early stages of the downturn. The growth performance of consumption is considerably more sluggish in the third year of the latest downswing than in the same period of the downturn in the 1990s.

In terms of the labour market, the difference between the two cyclical downswings is striking. Wage and income developments were significantly less supportive of private consumption between 1992 and 1994 than between 2001 and 2003. Average annual growth in wage income was slightly negative during the former period and largely positive during the



latter. The difference is entirely attributable to more resilient employment whereas progress in real wages was significantly faster during the 1992-94 period. Developments in non-wage income were also more favourable in the 2001-03 downturn.

**Table 3: Income developments in the 1992-94 and 2001-03 downturns, euro area**  
(annual average growth in %)

	1992-94 (1)	2001-03 (2)
Employment	-0.8	0.4
Real wage rate	0.8	0.4
Real wage income (3)	-0.1	0.8
Real disposable income	-0.4	0.8
Private consumption	0.5	0.9

(1) 1992:1 to 1994:4.

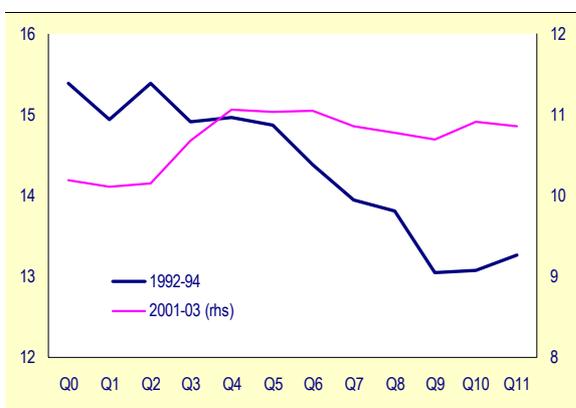
(2) 2001:1 to 2003:3.

(3) Growth in real wage income is the sum of growth in the real wage rate and growth in employment.

*Source:* Commission services and Fagan et al. (2001).

There are also important differences between the two cyclical episodes in terms of savings behaviour. In the recession of the early 1990s, households partly offset adverse developments in disposable income by curbing their savings rate. In contrast, they have displayed a much more cautious savings behaviour since 2000. To give an idea of the order of magnitude involved, a saving pattern similar to the one observed in the early 1990s would have boosted consumption growth by half a percentage point per year in the 2001-03 downturn.

**Graph 14: Household saving rate in cyclical downturns, euro area** (in % of disposable income)



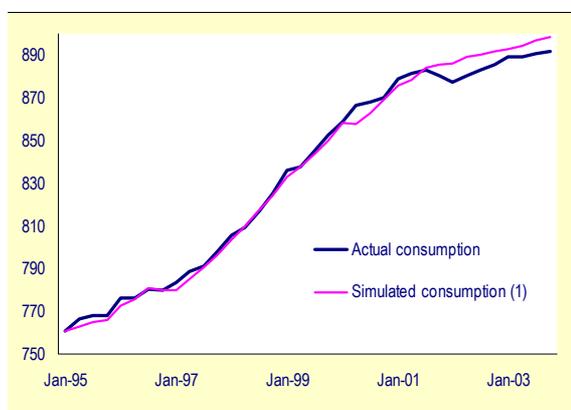
Q0 corresponds to the peak preceding the beginning of the downturn (Q2 Q1 for the 1992-93 recession and 2000 Q4 for the 2001-03 downturn)

*Source:* Fagan et al. (2001) and Commission services.

### Current sources of consumption weakness

In order to better understand recent developments in household spending, a consumption function was estimated (see details in Box 1). The function relates quarterly private consumption in the euro area to a number of traditional macroeconomic determinants, including disposable income, equity wealth, inflation, interest rates and the unemployment rate.

**Graph 15: Household actual and simulated consumption, euro area** (in billion of 1995 euro)



(1) As simulated with the consumption function over 1995-2003.

*Source:* Commission services.

The estimated equation explains actual developments in consumption over the 1990s quite well, including the 1992-93 recession. However, it clearly performs less well after the turn of the decade. As shown in Graph 15, household spending has remained below what is predicted by the equation since 2001. The gap was established essentially during the second half of 2001 and the first half of 2002. Subsequently, it narrowed somewhat before widening slightly again in the second half of 2003. Overall, the consumption function suggests that the level of private consumption is currently somewhat weaker – by about 0.7% – than what would be expected given the prevailing macroeconomic conditions.

**Box 1: Estimating a consumption function for the euro area**

In order to gain a better understanding of the factors which have weighed on household spending in the last few years, a consumption function was estimated using euro-area quarterly time series. From among the several specifications tested, a so-called error correction model provided the most satisfying results. The estimated consumption function is composed of two elements. The long-term equation relates the level of real private consumption to selected long-term determinants. The short-term dynamics links quarter on quarter growth in real private consumption to a few variables and the lagged deviation of consumption from its long-term value (the so-called error correction term). In such a framework, consumption can deviate from the value dictated by the long-term relation only temporarily, since a deviation at any point in time will lead to a correction in the ensuing periods.

Households decide on spending/saving on the basis of their present and future disposable income but also their wealth, the relative prices of present and future consumption and the uncertainty surrounding the future stream of income. The determinants of private consumption in the long-run equation include disposable income, stock prices (as a proxy for wealth), real short-term interest rates and inflation (as a proxy for the uncertainty as to the real depreciation of non-indexed financial assets). Other potential determinants such as real long-term interest rates, unemployment and residential property prices were also tested, but their contributions were not found to be econometrically meaningful. The elasticities are presented in the left-hand panel of the table below. The variables in the long-run equation are all non-stationary. Johansen’s approach was used to test for cointegration and to estimate the equation.

The estimated parameters in the short-term dynamics are displayed in the right-hand panel of the table. Only disposable income, the real long-term interest rate and unemployment were found to be significant. The short-term equation explains close to 70% of the variance in quarter-on-quarter growth in consumption, a fit which is relatively good for this type of specification. The fit of the equation is good for the 1990s. The equation performs less well after the year 2000.

**A consumption function for the euro area  
Main estimation results**

<i>Long-term elasticities (1)</i>		<i>Short-term dynamics (1) (2)</i>	
<i>Variable</i>	<i>Elasticity</i>	<i>Variable</i>	<i>Coefficient</i>
Disposable income	1.052	Disposable income ( <i>q-o-q growth</i> )	0.523
Stock prices	0.024	Change in real long-term interest rate (3)	-0.002
Real short-term interest rates	-0.004	Change in unemployment rate (4)	-0.011
Inflation rate	-0.006	Error-correction term	-0.199
		Constant	0.003
		R_squared 0.67	Durbin Watson 2.09

(1) All elasticities/coefficients are significant at the 1% level. Estimation sample is 1987:Q2 to 2003:Q3 (quarterly data).

(2) Endogenous variable (private consumption) is expressed in q-o-q growth.

(3) Lagged by two quarters.

(4) Second differences.

**Source:** Commission services – disposable income data based on Fagan et al. (2001).



Table 4: Contributions to annual growth in private consumption 2000-03, euro-area  
(as predicted by the consumption equation)

	Disposable income	Stock prices	Inflation	Long-term real interest rate	Short-term real interest rate	Unempl. rate	Total consumption growth	
							As explained by equation	Actual
2000	2.3	0.5	-0.2	-0.4	0.2	-0.1	2.5	2.7
2001	2.3	0.2	-0.3	0.1	-0.1	-0.2	2.2	1.7
2002	1.3	-0.3	-0.2	0.0	0.2	0.0	1.0	0.1
2003	0.9	-0.6	0.0	0.0	0.2	0.2	0.7	1.0

Source: Commission services.

Main messages from the consumption function. The estimated consumption function can be used to assess the sources of consumption weakness in recent years. Table 4 displays the contribution of the main determinants of consumption to the changes in consumption over the 2000-03 period, as simulated using the fitted equation. Several points are worth highlighting:

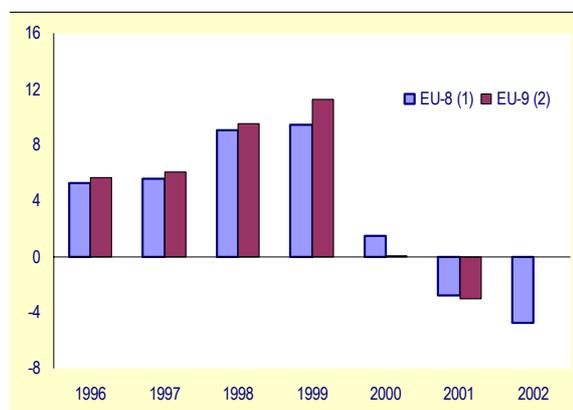
- According to the equation, consumption growth should have decelerated modestly in 2001, when it actually slowed substantially.
- In 2002-03, the equation ascribes the weakening of consumption mainly to the deceleration of disposable income and the bursting of the equity bubble. As in 2001, a non-negligible part of the consumption slowdown remains unexplained in 2002.
- In addition to its direct impact on real purchasing power, the rise in inflation weighed somewhat on household spending in 2001 and 2002. In contrast, the cut in short-term interest rates provided some 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 consumption would have been significantly less buoyant in the late 1990s and more resilient in the ensuing downturn in the absence of stock market gyrations. 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.

Nevertheless, two factors suggest that these results should be interpreted with caution. First, although the estimated long-term impact of stock

prices on consumer spending is in line with the existing empirical literature, it is somewhat on the high side.<sup>7</sup> Second, the consumption function may overestimate the negative wealth effect incurred since 2000, because it only takes into account developments in stock prices. Total household wealth also includes other forms of financial wealth, as well as residential property. In recent years, the prices of these latter two categories of wealth have tended to fare much better than the prices of quoted shares.

Graph 16: Households financial assets, euro area  
(% annual changes in real terms)



(1) Euro area excluding EL, FR, IE, LU.  
(2) EU-8 + FR. No data available for 2002.

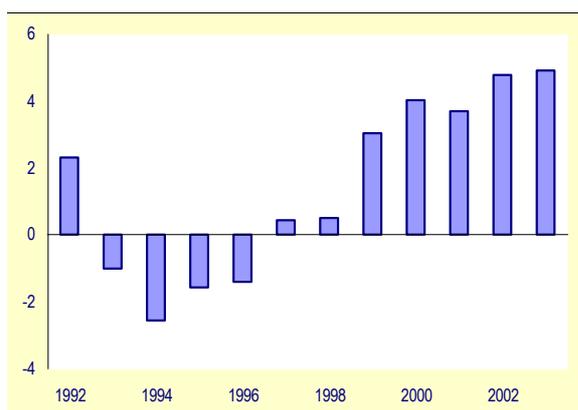
Source: Commission services.

According to Eurostat data, households' total financial assets decreased by 3% in 2001 in the

<sup>7</sup> According to the estimation, a 10% drop in stock prices entails a long-run fall in consumption of 0.25%. Boone et al. find an elasticity of less than 0.2% for continental Europe (Boone, L., Giorno, C. and P. Richardson (1998), 'Stock market fluctuations and consumption behaviour: some recent evidence', *OECD Working Paper* No. 208).

euro area (see Graph 16). Preliminary data point to a further contraction of about 5% in 2002. Hence, the contraction in total financial wealth over the past few years has remained fairly subdued relative to the collapse in equity prices which, based on annual averages, fell respectively by 20% and 25% in 2001 and 2002. In the meantime, property wealth is likely to have increased significantly. As shown in Graph 17, growth in residential property prices picked up speed in the 2001-03 downturn, reaching close to 5% in real terms in the last two years. Overall, although no national account data are available for households' property wealth, there is some evidence that losses in households' total wealth have remained limited since 2000.

Graph 17: Residential property prices, euro area  
(% annual changes in real terms (1) – all dwellings)



(1) Private consumption deflator.

Source: ECB and Commission services.

Due to a lack of adequate data at the quarterly level, the estimated consumption function does not include property wealth or non-equity financial wealth effects. Reliance on stock prices as the only proxy for wealth may therefore have led to an overestimation of the negative impact of wealth effects in the 2001-03 downturn. A major implication is that recent consumption developments may have been even more subdued relative to the prevailing macroeconomic conditions than suggested by the estimated consumption function. Additional possible sources of spending weakness, which could not

be captured in the equation,<sup>8</sup> include household debt constraints, deteriorating public finances, demographic ageing, distortions in perceived inflation and low confidence. These possible factors are discussed below.

*Debt constraints.* Although household debt increased substantially during the second half of the 1990s, the overall level of household indebtedness remains rather low in the euro area relative to other OECD countries. The risk that debt might act as a constraint on spending appears low at this juncture.<sup>9</sup> Mortgage debt, which accounts for more than two thirds of household debt, has expanded by 6-7% annually in the past three years. This pace of growth does not signal significant debt constraints.

*Deteriorating public finances.* Budgetary policy has tended to be moderately counter-cyclical in the early stages of the downturn. However, in some Member States the loosening of fiscal policy has led to excessive deficits which may have weighed on consumer confidence and willingness to spend. More generally, income tax cuts enacted in most Member States may have been met with more cautious spending behaviours. At least, there is no evidence that they stimulated consumer spending as had been hoped for.

The possibility of such non-Keynesian effects of fiscal policy is in line with the fact that much of the decoupling between actual and simulated private consumption, as discussed in the previous section, took place in 2001 and 2002. It is further supported by developments in saving behaviour in those countries for which the information is available.<sup>10</sup> Nearly all countries that loosened budgetary policy in the downturn have also experienced an increase in the savings ratio. The only exception to this rule is Finland which enjoys a comfortable fiscal surplus and where a deterioration of public finances may have been

<sup>8</sup> This may be due to inadequate data. It can also reflect the fact that these variables do not generally affect consumer spending substantially but have gained in importance in recent years.

<sup>9</sup> See Quarterly Report on the Euro Area No III/2003.

<sup>10</sup> Annual data on savings are currently available for all euro-area Member States except EL, IE, LU and PT.



perceived as not worrying by households. Of the three countries that have tightened budgetary policy in recent years and for which saving data are available, two have enjoyed a decline in the household savings rate.

*Demographic ageing.* Although the direct impact of population ageing on spending patterns is very gradual, increasing awareness of upcoming related pressures on pension systems may have induced households to raise precautionary savings. The importance of such a factor is unfortunately difficult to assess at this stage.

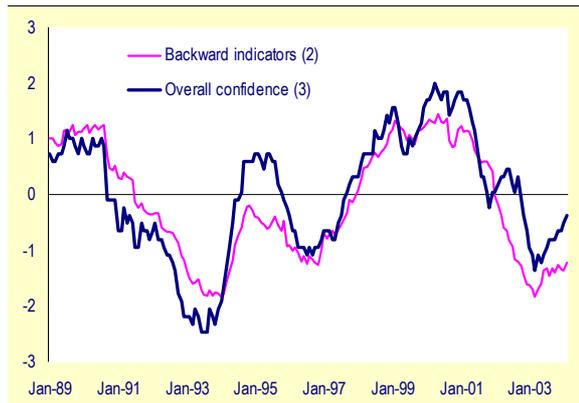
*Distortions in perceived inflation.* The euro changeover has been associated with a rising gap between inflation developments and their perception by households. Such a distortion in inflation perceptions might have led households to underestimate their purchasing power. However, its importance as a source of consumption weakness should not be overestimated. It is worth noting that much of the increase in the households' savings rate took place in 2001, i.e. before the euro changeover. Furthermore, the gap between actual inflation and its perception by households narrowed significantly during the first half of 2003 without triggering a noticeable release of pent-up demand.

*Weak consumer confidence.* Household sentiment has improved gradually since spring 2003. However, the overall measure of consumer confidence provided by ECFIN surveys is forward looking in the sense that it is an average of consumers' answers to several questions on their own and the general economic situation over the next 12 months. In contrast, backward looking indicators in consumer surveys have improved more modestly (see Graph 18), suggesting that households still have a fairly pessimistic view of their present situation.

It is also to be noted that households' assessment of their present and past situation bottomed out in spring 2003 at levels which were comparable to the lows reached during the 1992-93 recession.<sup>11</sup> Hence, the fairly resilient labour market and more supportive developments in disposable income

have not led households to rate the 2001-03 downturn as less painful than its 1992-93 predecessor. Furthermore, the ongoing recovery of backward looking indicators of consumer sentiment appears slow relative to similar stages of the confidence cycles of the 1990s.

Graph 18: Consumer confidence (1), euro area



(1) Normalised data.

(2) Average of three backward looking indicators of household sentiment in ECFIN survey (personal financial situation, general economic situation and major purchases).

(3) Overall confidence indicator in ECFIN's consumer survey.

Source: Commission services.

Overall, a careful analysis of confidence surveys shows that the factors currently restraining confidence have probably more to do with households' personal financial situation (present and, to a lesser, degree future) than with their concerns related to unemployment or to the general economic situation, both of which have eased significantly in the past months. This could be a further indication that deteriorating public finances and increasing worries related to the effect of demographic ageing on pensions have taken their toll on consumer spending.

Finally, household confidence may also be hampered by the uncertainty surrounding the structural reform process. Slow progress and backtracking in the implementation of agreed reforms means that the beneficial effects of reforms are slow to materialise while the uncertainties on the economic environment are maximised.

<sup>11</sup> Households' assessment of their financial situation even bottomed out at a lower level in 2003 than in 1993.

**Concluding remarks**

The analysis presented in this section shows that developments in private consumption in the euro area are generally well explained by traditional macroeconomic determinants of consumption including disposable income, stock prices, inflation and interest rates. Nevertheless, consumption is currently somewhat weaker than predicted on the basis of an estimated consumption function.

The prevailing subdued level of private consumption, relative to what might be expected

according to traditional macroeconomic determinants of consumption, is mirrored in the slow speed of recovery of some household confidence indicators. This could be partly explained by distortions in perceived inflation, but it probably also reflects concerns related to the deterioration of public finances, to the increasing awareness of the challenges posed by population ageing and, more generally, to the uncertainty generated by the very slow progress with structural reforms.



## Focus

### II. The impact of the euro appreciation on economic activity

*After a prolonged period of weakness, the external value of the euro has returned to a level more in line with estimates of its equilibrium value. In historical perspective, the current level is slightly above the long-term average in real effective terms. As an immediate effect of the appreciation, exporters have suffered from a significant loss in international price competitiveness compared with the euro trough in 2000. However, the sensitivity of extra-area exports to variations in exchange rates is relatively small in comparison with the impact of developments in world import demand. At the current juncture, it is likely that the rebound in world trade more than offsets the impact of the loss in price competitiveness. A second important potential effect of the appreciation on the economy is related to the impact of lower import prices on domestic inflation and on purchasing power. In line with lags observed in the past, domestic prices have so far been slow to respond to changes in import prices. However, the benefits of the strong euro to the consumer should materialise in the near future. Overall, the impact on economic activity of an appreciation, when following a previous depreciation, can be modest.*

#### 1. Introduction

The present Focus Section analyses the impact of the appreciation of the euro on the euro-area economy. Changes in exchange rates can affect economic activity through a number of channels, of which the four most important are:

- *Price competitiveness.* An appreciating currency implies a loss in international price competitiveness. Exporters lose market shares on international markets unless they are able to hold prices in foreign currency constant by squeezing profit margins.
- *Terms of trade.* Prices of imported consumer goods and intermediate goods decline, which entails an increase in domestic purchasing power, which in turn may strengthen domestic demand.
- *Domestic capital costs.* Capital inflows may increase if the appreciation is caused by a shift in preferences towards holding domestic rather than foreign assets, leading to reduced domestic capital costs.
- *Profitability.* An appreciation weighs on corporate profits either because exporters partly restore competitiveness by reducing prices in euro or because the appreciation reduces the profit stream from foreign subsidiaries. Lower profits can in turn affect investment.

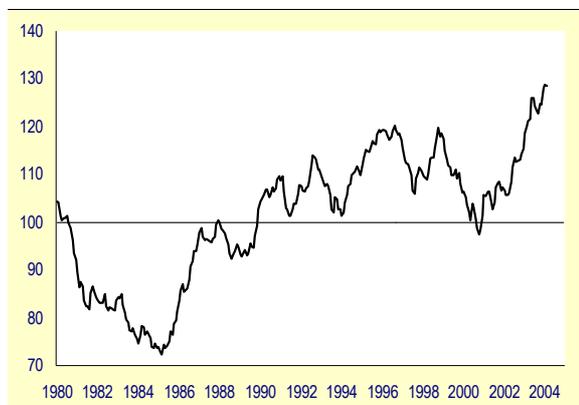
After a first section, aimed at putting the current value of the euro in a historical perspective, these

channels are discussed successively. A final section presents model simulations of the overall impact of the appreciation on growth in the euro area.

#### 2. The euro in historical perspective

Since the beginning of 2003, the euro has risen from a little over parity against the dollar (\$1.04) to a value around \$1.23 in the first half of March 2004 – an appreciation of close to 18%. In a more long-term perspective, the euro is currently around 12% above its average value against the dollar of 1.10 during the period 1980-2003. The euro remains 6% below its value in 1995 and still about 15% below its twenty-five year high point of 1.44 recorded in January 1980.

Graph 19: Nominal effective exchange rate of the euro  
(Monthly data, 1980-2003=100)



Source: Commission services.

While public attention usually focuses on the bilateral exchange rate of the euro vis-à-vis the USD, effective exchange rates are more informative than bilateral exchange rates for assessing the impact on economic activity. Real effective exchange rates (REER) are particularly meaningful because they control for differences in inflation among trading partners.

**Table 5: Variation in the euro’s real effective exchange rate (REER) for various deflators**  
(based on monthly values)

	Jan-1999 / Oct-2000	Oct-2000/ Feb-2004	Feb-2003/ Feb-2004
GDP deflator	- 25.2	29.5	6.5
Consumer prices	- 23.8	29.7	6.7
Export prices	- 20.9	24.7	4.6
Unit labour costs,	- 26.6	30.4	6.6
<i>Memorandum items</i>			
NEER	-20.5	31.1	6.9
USD/EUR	-35.7	47.5	17.3

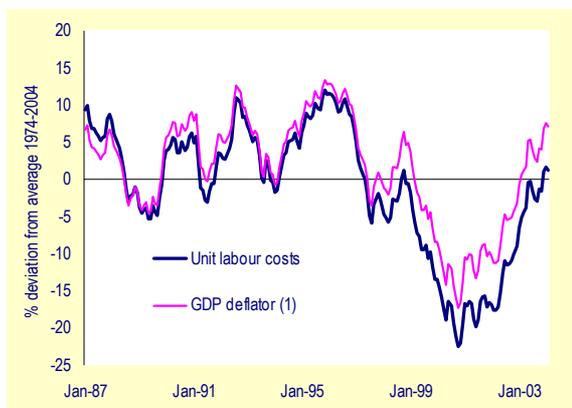
Note: A + indicates an appreciation. In order to facilitate comparison with the subsequent rebound the change is calculated in % of the trough, i.e. the inverse of the usual notation for the first column.

Source: Commission services.

Depending on the deflator chosen, REERs fell between 20 and 27 % between January 1999 and October 2000 and have appreciated by 25 to 30 % since then. In all cases, the REER indicates that price competitiveness is currently less favourable than when the euro was launched.

A comparison of the recent REER with long-term averages gives a more reliable picture than the (implicit) comparison with its launch value in 1999, for which there is no evidence that it could be considered an equilibrium value. Graph 20 relates the euro-area REER to the 1974-2003 average. The graph shows that the current REER of the euro area exceeds its long-term average by a relatively narrow margin of about 1 to 7% depending on the concept considered. In addition, Commission estimates suggest that the euro-area REER is close to its equilibrium rate. The magnitude of the deviation between the actual real effective exchange rate and an estimate of the fundamental equilibrium exchange rate (FEER) is small, both relative to past deviations and relative to the margin of uncertainty that surrounds any estimation of equilibrium exchange rates.

**Graph 20: Euro-area real effective exchange rate**  
(synthetic euro before 1999, relative to average 1974-2003)



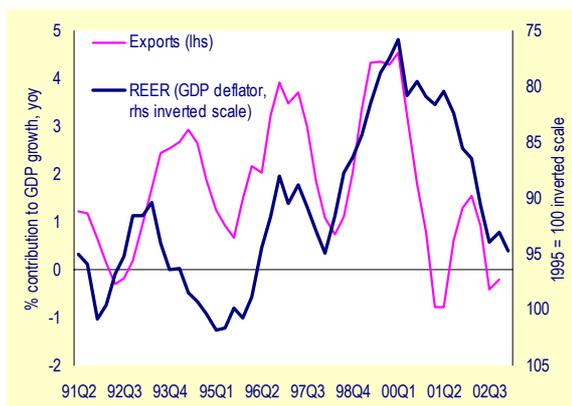
(1) The REER based on consumer price inflation is not shown as it is very similar to the one based on the GDP deflator.

Source: Commission services.

### 3. The impact on export growth

Changes in price competitiveness obviously impact on euro-area exports. Graph 21 reveals that export growth and REER have moved into the same direction for most of the time since the second half of the 1990s. On the other hand, relatively strong export growth coincided in 1993/94 with a comparatively strong REER.

**Graph 21: Export performance and REER, euro area**



Note: Exports includes intra-area trade.

Source: Commission services.

In order to arrive at a reliable estimate of the sensitivity of euro-area exports to the exchange rate, it is important to control for the impact of the expansion in world trade on export growth.



Commission services' estimates suggest that the exchange rate elasticity of extra-area exports is relatively low (see Box 2). It is estimated that a 10 % appreciation of the real effective exchange rate reduces extra-area exports by about 2.5%. This is a relatively small effect compared to the impact of world import demand on euro-area exports. It is estimated that if the euro had remained at its trough level of October 2000, quarter-on-quarter export growth would have been about 0.5 percentage point higher than actually observed in the past three years. But it would have been even much stronger over the same period if growth in world import demand had recovered to the rates observed in the 1990s. As growth in world trade has recovered swiftly in the past months, it is likely that the impact of world import demand on euro-area exports will offset the effect of the euro appreciation.

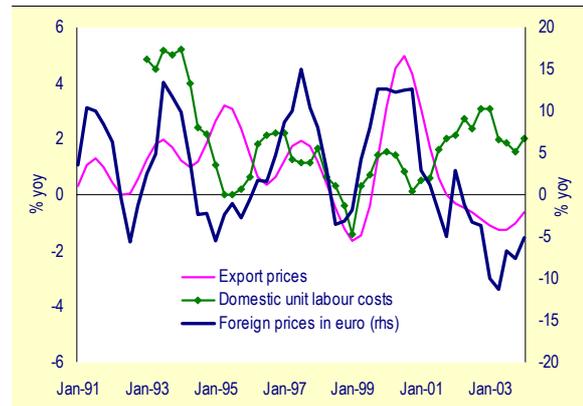
### Reasons for the muted exchange rate elasticity of exports

One reason why the sensitivity of euro-area exports to exchange rates is small relative to the income effect is linked to the availability of hedging instruments. Given the large potential impact of exchange rates on revenues from abroad, exporters usually hedge their short-term exposure to variations in exchange rates by using financial instruments such as futures, swap or option contracts.

As regards longer-term engagements, it matters whether changes in exchange rates are considered to be transitory or permanent. If entry into the foreign market involved specific investment, which would be irreversible upon market exit, exporters are likely to accept a period of lower revenues or even operational losses in order to keep market shares provided an exchange rate shock is expected to revert in the end. Evidence of this behaviour can be derived from the pricing-strategies of exporters. For instance, it is consistent with the more muted response of the REER in export prices to the euro's weakness and rebound than for REER calculated with other deflators in Table 5. Graph 22 shows that euro-area export prices often moved in tandem with foreign prices (in euro) and are less closely linked to domestic prices (as measured here by unit labour costs). Since prices are stickier than

exchange rates, the variability in foreign prices (in euro) is primarily caused by exchange rate variations.

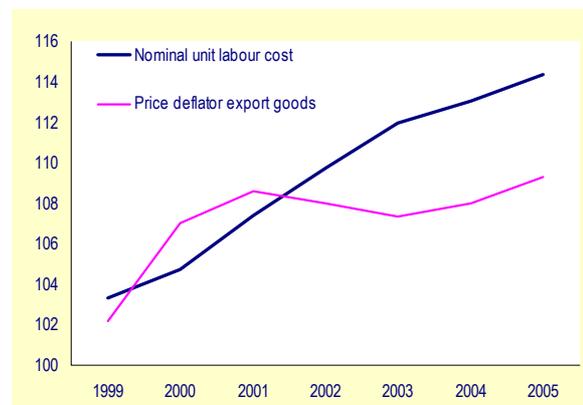
Graph 22: Export, domestic and foreign prices, euro area



Source: ECB, Commission services.

Thus, a second explanation for the muted response of export volumes to the exchange rate relates to the observation that exporters adjust profit margins if the exchange rate is high, cutting prices if domestic products are expensive on foreign markets and vice versa. Since autumn 2001, growth in euro-area export prices denominated in euro has been slightly negative. Profit margins in exports have been used as a buffer to compensate partially for the exchange rate-induced loss in price competitiveness.

Graph 23: Profit margins of producers of export goods, euro area



Source: Commission services.

**Box 2: How sensitive are extra-area exports to variations in the exchange rate?**

To assess the relative importance of trade and exchange rate effects, an empirical model was estimated in which extra-area exports of goods and services are explained by world trade and the REER (GDP deflator). Extra-euro area exports are based on national account data. However, the latter do not distinguish between intra and extra trade and were adjusted for the share of intra-area trade as obtained from trade statistics. Contrary to national account trade data (available to 2003:Q4), extra-euro-area trade data were only available to 2003:Q3. The series world trade excludes euro-area trade.

The specification is in the form of an error-correction model. This assumes that there is a long-term relationship between exports, world trade and the REER. Deviations from this long-term relationship have an impact on the short-term dynamics. Despite its simplicity, the estimation produces significant coefficients for all variables, explaining about 2/3 of the variation in quarterly export growth since 1991. In addition to the usual caveats that apply to econometric estimates, it should be stressed that the sample is rather short, which restricts the reliability of econometric tests.

<b>Determinants of extra-area exports, euro area</b>		
(1991:1-2003:3)		
	<b>Long term elasticity</b>	<b>Short term coefficients</b>
World import demand	0.85	0.42
REER (GDP)	-0.26	-0.21
Deviation from long-term equilibrium in t-1		-0.33
	R**2	0.67
	Adj. R**2	0.62

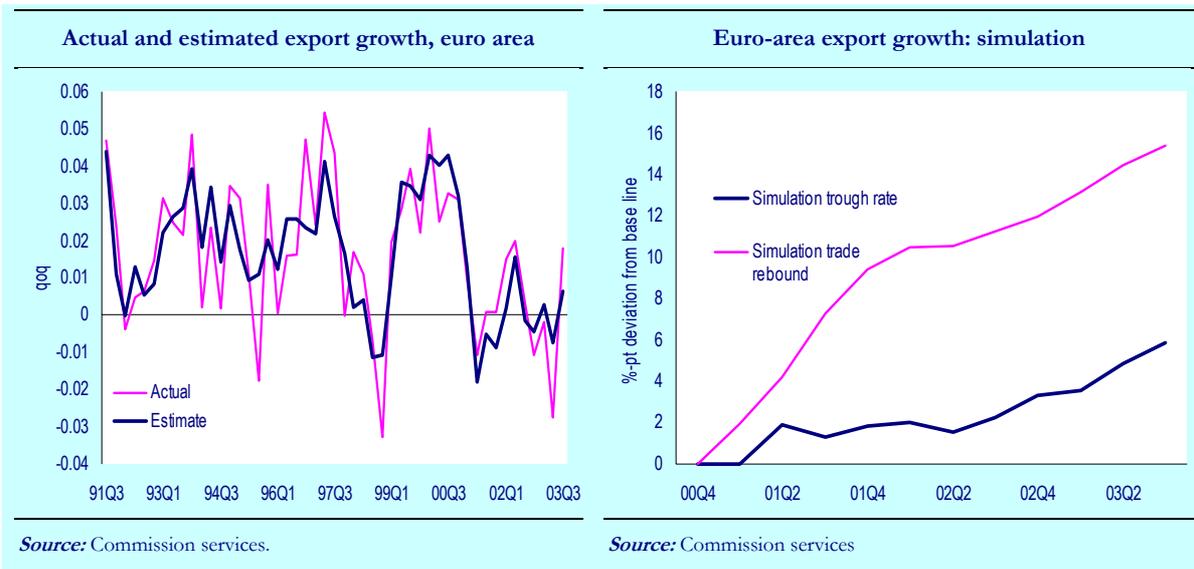
Note: All coefficients significant at 5% level. REER (GDP deflator) lagged by 1 period for the short term. The short-term coefficients describe the dynamic adjustment in quarter-on-quarter growth rates.

**Source:** Commission services.

Despite the good overall fit (see left panel in graph on next page), it should be noted that the model produces smoother extra-area export growth than actually observed. The strong pick-up of exports in 2003Q3 is underestimated while export growth in the preceding quarter is overestimated. This highlights the difficulty in interpreting developments in trade in the fourth quarter of 2003 as provided in national accounts. The reported sharp slowdown in export growth in the first release of national accounts in Q4 seems to reflect corrections from earlier movements to a considerable extent.

Overall, the elasticities obtained appear consistent with estimates in the literature for Member States (see for instance Hooper, P. et al. (2000), "Trade Elasticities for the G-7 Countries", Princeton Studies in International Economics No 87). The exchange rate elasticity is generally relatively small, i.e. a 10 per cent real effective appreciation would reduce exports by about 2%. The long-term elasticity with respect to world import demand of slightly below 1 is in line with the observation that the euro area is losing market shares over time due to more countries having become active in international trade in the 1990s. Adjustment to deviations from the long-term equilibrium is relatively fast. The coefficient suggests that a third of the deviation from equilibrium is corrected in the subsequent period. Long-term elasticities are higher than short-term elasticities, which is consistent with the presence of frictions to adjustment in the short-term.

The exchange rate elasticity is essentially robust to the deflator used. That is, it changes only marginally if consumer prices or unit labour costs are used instead of the GDP deflator. It should be noted, however, that the significance of the exchange rate elasticity seems to be sensitive to the estimation method. In contrast to the specification used here, it is not always significant when alternative methods are used.



To illustrate the relative importance of REERs and world trade for euro-area exports, two simulations were conducted with the estimated equation. The first one assumes a recovery of world trade growth (excluding euro area) to its 1991-1999 average from 2001 onwards (Simulation “trade rebound”). The second one uses actual world trade growth, but assumes that the REER has remained at its level in the trough of October 2000 (Simulation “trough rate”).

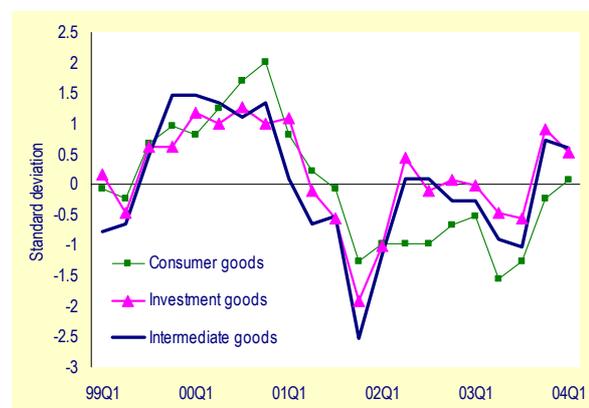
The results suggest the following insights (see right panel of the graph above):

- A REER remaining at its trough-level would have yielded quarter-on-quarter export growth to be 0.5 percentage point higher on average over 2001-2003.
- A rebound in world trade growth would have had a more rapid and stronger impact on export growth throughout the whole 2001-2003 period and most markedly in 2001. The average gains in quarterly export growth, of about 1.3 percentage points, are significantly higher than the 0.5 percentage points registered in the previous scenario.

### Sectoral sensitivity of exports

In line with the consideration that developments in world trade may offset the impact of a loss in price competitiveness, industrialists’ assessment of export expectations picked up appreciably in autumn 2003 despite an appreciating currency. Evaluating the replies from the Commission’s quarterly business survey, it appears as if export optimism has exceeded its long-term average (1985-2003) in total manufacturing. However, a small deterioration in export sentiment can be observed in January 2004, when industrialists were surveyed the last time, for manufacturers of intermediate goods and capital goods. These two market segments constitute two thirds of euro-area exports. Demand for them is strongly driven by foreign income because intermediate goods are used in production abroad and capital goods are related to investment abroad.

Graph 24: Assessment of export expectations in industry, euro area

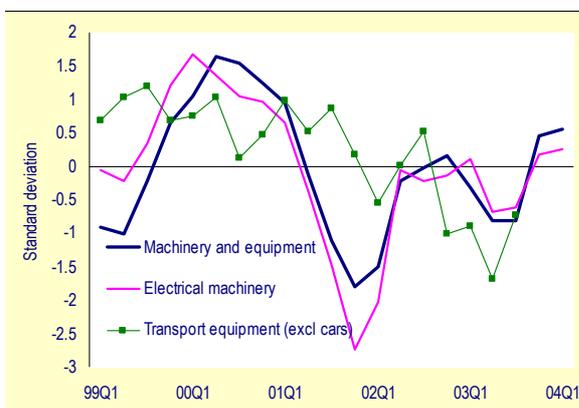


Note: Scale expressed in standard deviations, 0 is the average balance 1985-2003.

*Source: Commission services.*

In a study conducted for the European Commission, Fouquin, et al. (2002) estimated the exchange rate elasticities of different manufacturing sectors in the EU and the euro area.<sup>12</sup> By combining sectors' trade elasticity to exchange-rate fluctuations with their exposure to competition from the dollar zone, the authors shed light on sectors' exposure to USD/EUR fluctuations. Manufacturing sectors both strongly exposed and of relatively large importance in the euro area are machinery and equipment, electrical equipment and transport equipment.<sup>13</sup> The chemical industry was evaluated as being an economically important industry that is relatively weakly exposed to USD exchange rate variations.

Graph 25: Assessment of export outlook by industry



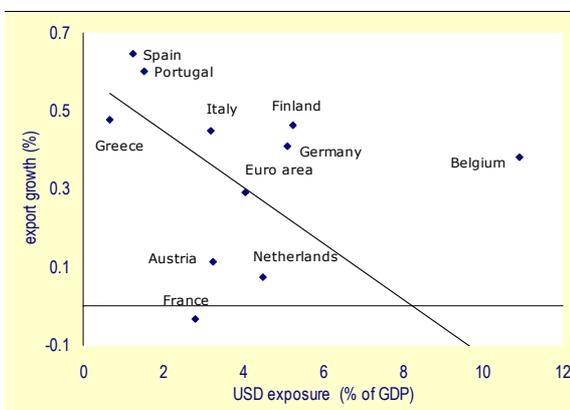
Source: Commission services.

Recent developments in the assessment of the export outlook in the Commission's business survey for these most exposed industries do not, however, reflect large concern with the recent euro appreciation (Graph 25). Export optimism in the three sectors highlighted in Fouquin, et al (2002) improved in the course of 2003, exceeding the long-term average in the two cases for which recent data are available.

### Differences in the exposure of Member States to the US dollar

Member States differ in openness, industrial structure and the geographical destination of external trade, causing the euro appreciation to have a dissimilar effect on export growth. The direct exposure to the USA and the exposure to countries that keep their exchange rate close to the US dollar can be combined to produce a measure of dollar exposure of Member States exports. For the euro area as a whole, dollar exposure is estimated at 4% of GDP. This is significantly higher than the direct exposure to the dollar as measured by euro-area exports to the USA (2.6% of euro-area GDP). Among the euro-area Member States, Greece, Spain, France, Italy, Luxembourg, Austria and Portugal have a dollar exposure below the euro-area average. Exposure in Germany, Netherlands and Finland is not far above the average while Belgium and Ireland with respectively 10.9% and 12.6% of GDP dollar exposure are clear outliers.

Graph 26: Export growth and dollar exposure 2002-03 in Member States



Source: Commission services.

Member States with higher measured exposure recorded higher average export growth in the period of dollar strength and lower rates in the period 2002-2003, when the euro was stronger against the USD (see graph 26).

Two additional factors may have further contributed to widen differences in Member States' exports growth. First, euro-area sales that depend directly on US market conditions extend beyond exports of goods and services to the

<sup>12</sup> Chapter 5 (Sector sensitivity to exchange-rate fluctuations) in European Economy Special Report No 2/2002: European integration and the functioning of product markets.

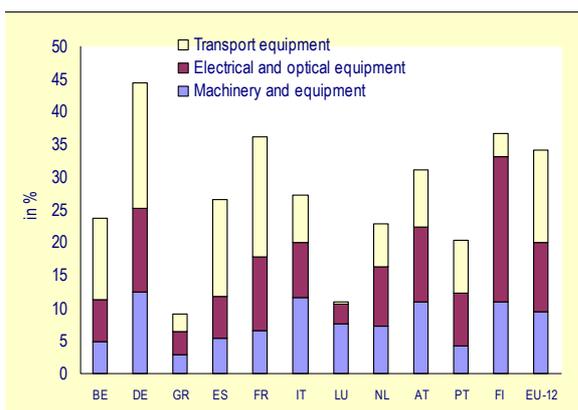
<sup>13</sup> Exposure was measured as the decline in the market share in response to a 10% depreciation of the USD.



USA. As a result of substantial inflow of euro-area FDI into the USA, total sales by US affiliates of euro-area firms amounted to 13.8% of euro-area GDP in 2002 or 11.9 after adjustment for double-counting of exports. The share is above 10% in Belgium, Germany, France, Ireland, Luxembourg, Netherlands and Finland.

Second, some countries have a high share in industries that are particularly exposed to the USD. Germany, France, Austria and Finland are the four countries where the share of the 3 most exchange rate-sensitive industries (machinery and equipment, electrical and optical equipment, transport equipment) is the highest in the euro area.

Graph 27: Production share (1) of US dollar sensitive sectors in the euro area (average 1999-2002) (2)



(1) % of total manufacturing output (average 1999-2002)  
(2) For DE, FR, PT average 1999-2001; for ES and EU-12 1999 value. No data available for IE.

Source: Commission services.

#### 4. The impact on domestic prices

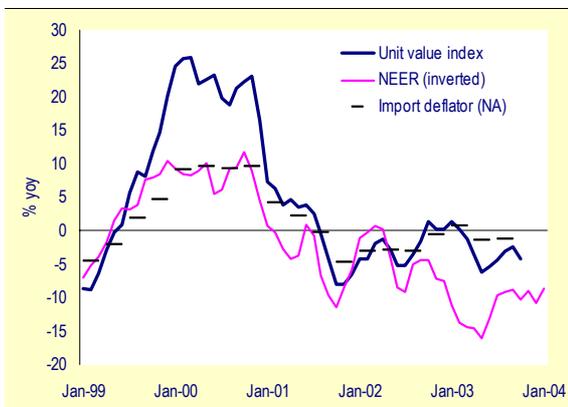
The beneficial impact of an exchange rate appreciation on domestic demand depends on the size and speed with which the improvement in terms of trade is passed through via import prices to domestic consumer prices. So far, it has been difficult to present clear evidence for the reversal of this effect in response to the appreciation of the euro. An apparent positive effect witnessed so far is that the increase in oil prices in USD terms since 2002 has not translated into similar rises in energy prices because of the counterbalancing effect of the rising euro.

#### Exchange rate and import prices

An exchange rate appreciation has the immediate favourable effect of reducing import prices. Graph 28 shows that import price inflation – as measured by the import unit value index from trade statistics - has fallen strikingly from above 25 % year-on-year in early 2000 to negative rates since autumn 2001.<sup>14</sup> The decline is more muted in terms of the national accounts' import deflators because those also include intra-area trade prices. A visual inspection already suggests a strong link between import prices and exchange rate movements. Deviations between both series appear to have predominantly been driven by shifts in oil prices.

Empirical estimates in the academic literature usually find that exchange rate pass-through for the euro area as a whole is rapid and large to import prices in the order of 50 to 70%. Box 3 provides further support for this hypothesis.

Graph 28: External price developments, euro area



Source: Commission services.

<sup>14</sup> The production of quantitative evidence on the transmission of exchange rate changes via trade prices to domestic price indices still suffers from the lack of ordinary price indices for extra-euro-area exports or imports. Import prices are readily available in the national accounts. They do not, however, distinguish between extra and intra-area trade. The unit value indices, which are calculated in foreign trade statistics, allow discrimination between internal and external prices but differ substantially in methodology from regular price indices.

**Box 3. The impact of the euro appreciation on import prices**

Econometric analysis supports the notion that import price inflation responds strongly and quickly to oil prices and exchange rates. As shown in the table below, contemporary changes in the NEER and oil prices explain more than half of the variation in quarterly import price inflation even if no further lags are assumed (short-term model). Assuming the existence of a long-term relationship between the price indices (error correction model) improves the fit, while short-term elasticities remain about the same. The estimation with an error-correction term suggests that deviations from the long-term equilibrium are corrected relatively quickly.

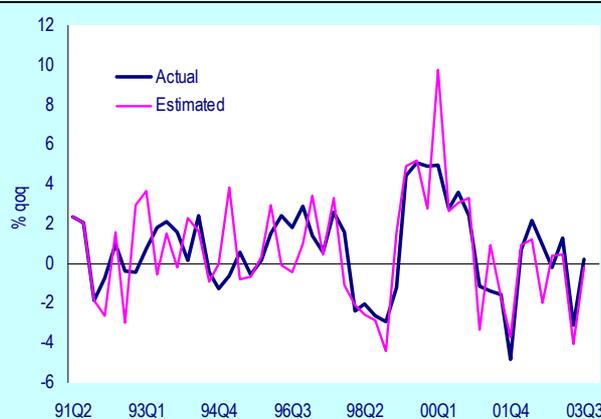
**Euro-area import price inflation, determinants and elasticities**  
(1991Q2-2003Q3)

	Short-term model (1)	Error correction model	
		Short-term dynamics	Long-term relation (2)
Oil price	0.134	0.123	0.128
NEER	-0.622	-0.578	-0.701
Core inf.	Ns	ns	1.400
Deviation from (2)	NA	-0.318	NA
R**2	0.685	0.752	NA

(1) Based on quarter-on-quarter changes.  
Note: All coefficients significant at 5% level.  
**Source:** Commission services.

Although the short sample suggests that estimation results should be considered with caution, there is some evidence that foreign exporters adjust prices to local conditions, similar to the behaviour of euro-area exporters on foreign markets. This result is also supported by the existing empirical literature. For instance, Warmerdiger (2004) finds pricing-to market effects to be important in the four largest euro area Member States and the euro area as a whole (Warmerdiger, T. (2004): “Import prices and pricing-to-market effects in the euro area”, ECB Working Paper No 299).

**Actual and estimated import price inflation euro area** (based on unit value index data)



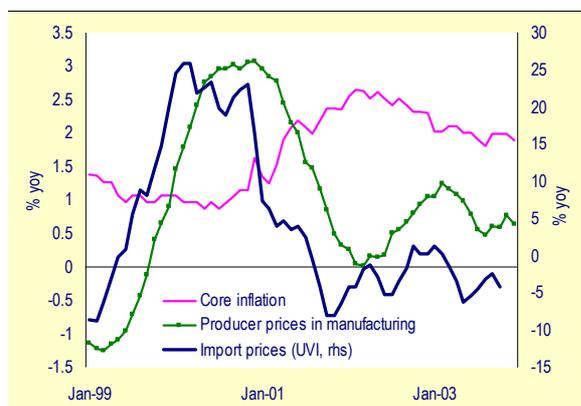
**Source:** Commission services.



### The pass-through to consumer prices

Exchange rate pass-through is distinctly more muted and lagged to producer and consumer prices than for import prices. Evidence from recent empirical studies confirms that the size of the pass-through decreases whereas the adjustment lags increase along the distribution chain of exchange rate changes to final prices. For producer and consumer prices there is generally little effect on impact. Most of the effect occurs with a lag of around 1½ to 2 years, with consumer prices showing a more delayed response than producer prices.<sup>15</sup>

Graph 29: Pass-through of import price inflation to domestic price developments, euro area



Source: Commission services.

Graph 29 shows that producer prices in the manufacturing sector followed import price movements closely but with a lag of 3 to 4 months over the 1999-03 period. A relationship between import prices and core consumer prices is hardly visible in the chart.

Table 6 provides further support for the hypothesis that the speed of pass-through diminishes in the course of the chain of distribution. Goods prices seem to be at least loosely linked to the development of producer prices. The remaining items, i.e. service prices appear to account for the stickiness of consumer price inflation.

<sup>15</sup> For a recent study, see Faruqee (2004), "Exchange rate pass-through in the euro area: the role of asymmetric pricing behaviour", IMF Working Paper No 04/14. For an overview, see EU Economy 2003 Review, Chapter 1.

The economic literature finds that the degree of exchange rate pass-through typically depends on a number of interrelated microeconomic and macroeconomic factors. The most important ones are the state of overall demand (cyclical conditions), whether the exchange rate change is perceived to be temporary or permanent, whether the country (destination/origin) is large or small, the industry-specific market structure, product characteristics as well as the macroeconomic policy set-up, in particular the degree of credibility of monetary policy.

Table 6: Correlation of euro area price indices with import price inflation (y-o-y) 1994-2003

	Maximum correlation	Lag in months
Energy	0.91	0
Fuels	0.92	0
Domestic producer prices		
Industry	0.79	3
Industry excl energy	0.55	5
Consumer prices		
Industrial goods	0.80	0
Goods	0.64	7
Services	0.56	24
HICP	0.41	8
Core inflation	0.59	23

Note: Import price is unit value index for extra-area imports of goods. Producer prices excluding construction.

Source: Commission services.

A number of factors suggest that it may take significant time before full price adjustment is achieved in the euro area.

- Consumer price inflation is still low, which is expected to slow down the pass-through because price adjustment costs may be prohibitive if the change in prices is small.
- Prices are generally considered as sticky in the euro area. This is for instance evidenced by the substantial lag with which prices respond to changes in demand.
- Competitive pressure is low in many sectors, in particular the service economy. The more producers are exposed to competition, the stronger the pressure to quickly pass through lower costs to consumer prices.

Considering the lags of up to 3 years in the pass-through from import price inflation to core inflation, the potentially large dis-inflationary effect of the euro appreciation should materialise in the near future.

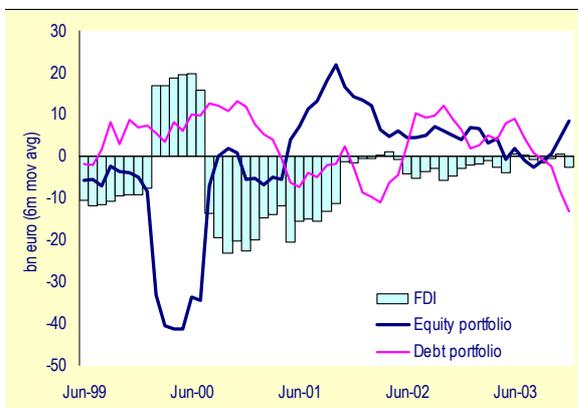
**5. The impact via other transmission channels**

In addition to the effect on exports and domestic prices, exchange rate movements may impact on economic activity through capital flows and economic confidence. Relatively little is known, however, about the quantitative impact of these channels.

If the exchange rate appreciation was caused by a shift in relative risk preferences towards euro-area investments, the euro area could hope to benefit from a smaller risk premium and thereby lower capital costs. Such a shift in relative risk preferences should show up in a re-direction of capital flows in the balance of payments.

The weakness of the USD also affects revenues from capital income abroad, which has a detrimental impact on the cash-position of euro-area residents and thereby possibly also on their investment behaviour. Since euro-area residents invested heavily abroad when the USD was strong, one would assume them to have realised capital losses in proportion to the euro appreciation. Graph 31 suggests an inverse relationship between the effective exchange rate and income from investment abroad. Between 2000Q4 and the most recent observation in 2003Q3, investment income from abroad declined by about 20 billion euro. This fall is significant if one takes into account that quarterly trade surpluses amounted to 26 billion euro on average over the same period. It is also equivalent to approximately 4% of the euro-area's adjusted gross operating surplus.<sup>16</sup>

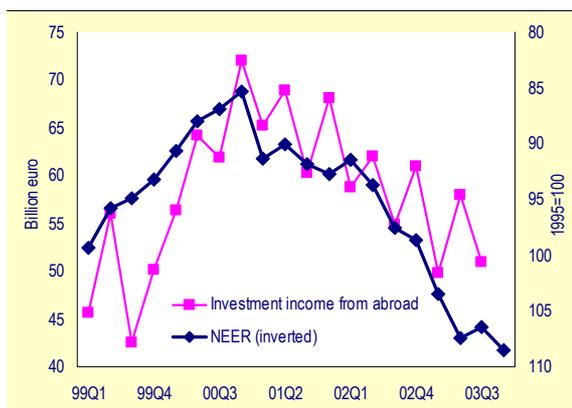
Graph 30: Net capital flows, euro area



Source: Commission services.

Generally, capital flows are too volatile to allow identifying trend breaks early and with certainty. As regards capital flows from and to the euro area over the last years, it appears that net outflows in FDI have declined over time (see Graph 30). As regards portfolio investments, net inflows dominated in 2002, a trend which continued in 2003 for portfolio investment in equity but not for investment in debt securities.

Graph 31: Investment income from abroad and exchange rate, euro area



Source: Commission services.

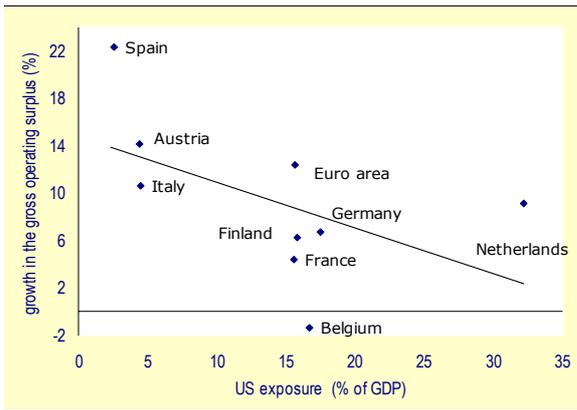
Because euro area companies invested heavily in the US during the nineties, their profitability and balance sheets were negatively affected by the US recession in 2001 and the subsequent rise in the bilateral EUR/USD exchange rate. While not fully capturing all the transmission channels from an appreciation to entrepreneurial and capital income (squeeze of profit margins, lower capital return in euro, depreciation of capital), Graph 32 relates US exposure to the percentage change in nominal gross operating surplus between 2000 and 2003. In a similar vein, Graph 33 relates US

<sup>16</sup> GDP minus labour income (compensation of employees minus imputed compensation of self-employed).



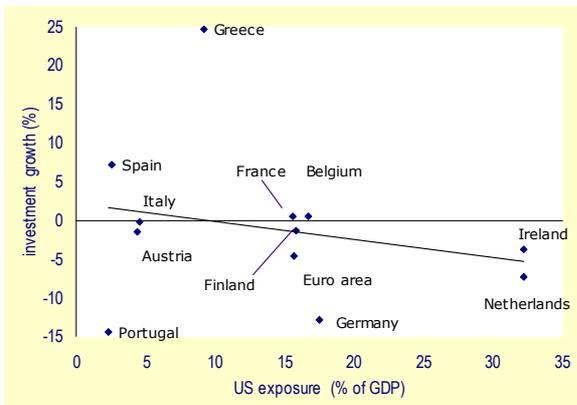
exposure to the percentage change in real investment between 2000 and 2003. Growth in the gross operating surplus is faster in the Member States with the smallest exposure to the US, namely Spain, Italy and Austria. These three countries also have above-euro-area-average investment growth. The Netherlands and Germany, with high US exposure, experienced a significant contraction in investment. However, the example of Portugal (smallest US exposure, largest investment contraction) underlines the fact that US exposure is only one of the many factors influencing the investment performance. This fact is also illustrated by the outlying position of Greece (for investment), which is related to the preparation of the Olympic Games.

Graph 32: Profitability and US exposure, euro area and Member State



Source: Commission services.

Graph 33: Investment and US exposure, euro area and Member State



Source: Commission services.

The impact of the euro appreciation on economic confidence may constitute a further potentially important transmission channel. In particular, if exchange rates record historical highs or lows, attention in the news is high and the public perceives the exchange rate to be of more importance than in ordinary times. This might affect their perception of the economic outlook in general and their business or employment prospects in particular. There is some concern that agents place too much emphasis on the euro appreciation than would be justified. For instance, economic analysts related the recent pause in the upward trend in confidence indicators to the strengthening of the euro. A key question is whether the pause just reflects the perceived impact of the appreciation on economic activity or whether there is scope for overshooting in expectations. Disentangling any “overshooting” effects in confidence indicators is difficult. The design of a possible empirical test of overshooting is presented in Box 4 on the next page. Reassuringly, the test does not provide any evidence of overshooting in expectations.

## 6. Evidence from macro-econometric simulations

The simulation of an exchange rate shock with macro-econometric models may shed some additional light on the impact of the euro appreciation. The main advantage of applying macro-econometric models is that they allow account to be taken of the interactions between the different transmission channels analysed above. A disadvantage of the use of sophisticated macro-econometric models is the fact that exchange rates are usually endogenously determined. In the Commission’s QUEST model, for instance, exchange rate movements are the consequence of shocks to other exogenous variables.

In order to arrive at a reliable estimate of the impact of an appreciation on economic activity, it is imperative to identify the underlying shock. However, standard shocks of monetary or fiscal policy, similar in size to policy measures observed, generally yield much smaller exchange

**Box 4: How do the changes in foreign exchange rates influence expectations?**

From its low on 26 October 2000 to 17 February 2004 the euro-dollar exchange rate has risen by 56 %. In the short term there is some concern about how a rapid appreciation affects expectations. The worry is that the euro appreciation feeds into expectations and leads to overreactions by economic agents. Eventually this could have a negative influence on domestic demand. Firms might reconsider their investment plans, or they might seek strong productivity gains by shedding labour. If such scenarios materialised, households and firms could become more cautious, reinforcing precautionary behaviour, and thereby depressing confidence. The main aim of this box is to shed some light on the issue of overreactions in expectations.

In the joint harmonised EU industry survey there are two time series that can be interpreted as expectations of future growth in euro-area industrial production and exports. The survey on production expectations is conducted on a monthly basis, while the survey on export expectations is conducted quarterly. Both these series, and their reference series on actual growth in euro-area industrial production and exports, are potentially influenced by fluctuations in exchange rates. Assuming that firms correctly take into account all the relevant information, their expectation error (e.g. the difference between expected export growth and realised export growth) should be uncorrelated with all the information, including information on exchange rates. For the purpose of testing this hypothesis, year-on-year growth rates of euro-area industrial production and exports are used. The real effective exchange rate is used for information about exchange rate developments.

The test procedure has two stages. The first is to establish that exchange rates do influence industrial production, exports, and expectations. The second stage is to test if expectation errors are uncorrelated with exchange rates, i.e. that no systematic mistakes are made when expectations are formed. To establish that the exchange rate matters for real and expected industrial production and exports, the real variables and the expectation variables are regressed on the relative change of the real effective exchange rate. The results show that changes in real exchange rates matter for both real variables and expectations, and explain between 11 and 31 percent (the R-square) of the variation in industrial production and exports.

The expectation error is defined as the difference between the expectation and the one-period-ahead outcome of the reference variable, e.g. the difference between expected production growth in November 2003 and realised production growth in December 2003. The expectation error is formed by taking the residual series from the regression of expectations on the one-period-ahead outcome. To test whether expectations are formed correctly and that no overshooting occurs, the expectation errors are regressed on a constant and the relative change in the real effective exchange rate. The coefficients should not be significantly different from zero for expectations to reflect all available information. For example, if the coefficient is significantly negative, this would mean that an appreciation leads to a negative expectation error, i.e. too low expected industrial production. The negative effect of an increase in the exchange rate would be over emphasised, leading to an overshooting.

**Expectation error regressed on relative change in euro-area real effective exchange rate**

Expectation error	Exchange rate coefficients relative change (y-o-y)
Industrial production	0.03
Exports value	0.20
Exports volume	0.13

None of the coefficients is significantly different from zero at 5% level.

**Source:** Commission services.

The table presents the coefficients from the regressions. None of the coefficients on the change in the exchange rate are significant, which means that the people asked in the surveys appear to form expectations correctly. Thus, there is no evidence of any systematic misinterpretation of exchange rate appreciation within the framework applied, i.e. there is no indication of an overshooting in expectations.



Finally it is important to stress that the analysis presented in this box focuses on the expectations of producers rather than financial investors. The possibility of overreactions in exchange rate expectations by financial investors has given rise to an important economic literature. For instance, research in behavioural finance suggests that – if information is costly – it may be rational for agents not to use all available information but to apply simple behavioural rules. This may give rise to herding behaviour and deviations of exchange rates from fundamental values (For a recent application, see Grimaldi and De Grauwe (2004): “Exchange rates in a behavioural finance framework”, mimeo, University of Leuven).

rate movements than observed in the real world.<sup>17</sup> For instance, in order to yield a 10% appreciation of the euro against the USD in the Quest model, one would need to simulate a widening of the short-term interest rate spread between the USA and the euro area by 7 percentage points. This is difficult to reconcile with actual developments.

The following simulation shows that the impact on economic activity of an appreciation, when following a previous depreciation, can be modest, with the economy returning to equilibrium relatively quickly.

**Table 7: Simulated effect of a depreciation of the euro driven by shocks to productivity and risk premium in the USA**  
(difference from baseline in per cent)

	Year -3	Year -2	Year -1
GDP	-0.1	-0.2	0.0
Consumption *)	-0.1	-0.3	-0.5
Investment *)	-0.1	-0.4	-0.7
Net exports *)	0.1	0.6	1.1
Inflation (%pts)	0.0	0.2	0.2
USD/Euro	-4.5	-10.8	-15.3

Note: \*) contribution to GDP. Percentage points difference from baseline.

Source: Commission services

The simulation shown in Table 7 is based on the scenario of a sharp correction of capital flows. It builds on an explanation that has been popular in the past to explain the weakness of the euro against the USD. The starting point is the expectation of a permanent increase in productivity growth in the USA, which induces

<sup>17</sup> For some recent macro-econometric simulations of the spill-over of selected shocks originating in the USA on the euro area, see, Meyermans, E. (2003), “The international transmission of shocks”, Federal Planning Bureau Working Paper No 9/03.

a downward revision of risk premiums on US assets (year -3 in Table 9). This explanation would fit with the observed depreciation of the euro between 1999 and 2000. After an overshooting of the exchange rate in the first years, the simulations would yield a gradual return to the initial exchange rate level in the medium term.

**Table 8: Simulated effect of a 10% appreciation of the euro driven by a sharp correction of previous expectations**

	Year 0	Year 1	Year 2
GDP	0.1	-0.1	-0.1
Consumption *)	-0.3	-0.3	-0.2
Investment *)	-0.3	-0.2	-0.1
Net exports *)	0.7	0.3	0.3
Inflation (%pts)	-0.1	-0.0	0.0
USD/Euro	-3.4	-1.4	-0.3

Note: \*) contribution to GDP. Percentage (points) difference from baseline.

Source: Commission services

The scenario now assumes a sharp correction of both productivity expectations and investors perceptions of risks (Year 0 in Table 8). This causes the adjustment back to equilibrium to take place through an abrupt reversal of capital flows and a sharp fall in the value of the USD (from 15.3% below the baseline in Year -1 to 3.4% below the baseline in Year 0). In this scenario, the impact on economic activity is small. GDP growth would transitorily decline in year 1. Inflation would only be marginally affected. If the simulation is continued to year 3, the impact of the shock would have died out and GDP growth and inflation would be back at the baseline, i.e. if no upward and downward revision of productivity expectations had taken place.

### III. References to further work

#### 1. Policy documents

EUROPEAN ECONOMY. No. 4. 2003.

**The Broad Economic Policy Guidelines BEPGs for the 2003-05 period.**

[http://europa.eu.int/comm/economy\\_finance/publications/european\\_economy/broadeconomypolicyguidelines2003\\_en.htm](http://europa.eu.int/comm/economy_finance/publications/european_economy/broadeconomypolicyguidelines2003_en.htm)

EUROPEAN ECONOMY. No. 5. 2003.

**Economic Forecasts, Autumn**

[http://europa.eu.int/comm/economy\\_finance/publications/european\\_economy/forecasts\\_en.htm](http://europa.eu.int/comm/economy_finance/publications/european_economy/forecasts_en.htm)

EUROPEAN ECONOMY. No. 6. 2003

**The EU Economy. 2003 Review**

[http://europa.eu.int/comm/economy\\_finance/publications/the\\_eu\\_economy\\_review\\_en.htm](http://europa.eu.int/comm/economy_finance/publications/the_eu_economy_review_en.htm)

EUROPEAN ECONOMY. No. 1. 2004

**The report on the implementation of the 2003 - 2005 Broad Economic Policy Guidelines**

[http://europa.eu.int/comm/economy\\_finance/publications/european\\_economy/implement2003\\_en.htm](http://europa.eu.int/comm/economy_finance/publications/european_economy/implement2003_en.htm)

EUROPEAN ECONOMY. ENLARGEMENT PAPERS. No. 17. September 2003

**Main results of the April 2003 fiscal notifications presented by the candidate countries**

[http://europa.eu.int/comm/economy\\_finance/publications/enlargement\\_papers/elp17\\_en.htm](http://europa.eu.int/comm/economy_finance/publications/enlargement_papers/elp17_en.htm)

EUROPEAN ECONOMY. ENLARGEMENT PAPERS. No. 18. September 2003

**The Financial sector in Bulgaria**

[http://europa.eu.int/comm/economy\\_finance/publications/enlargement\\_papers/elp18\\_en.htm](http://europa.eu.int/comm/economy_finance/publications/enlargement_papers/elp18_en.htm)

EUROPEAN ECONOMY. ENLARGEMENT PAPERS. No. 19. November 2003

**Progress towards meeting economic criteria for accession: the assessment from the 2003 comprehensive monitoring reports and regular report**

[http://europa.eu.int/comm/economy\\_finance/publications/enlargement\\_papers/elp19\\_en.htm](http://europa.eu.int/comm/economy_finance/publications/enlargement_papers/elp19_en.htm)

EUROPEAN ECONOMY. ENLARGEMENT PAPERS. No. 20. November 2003

**2003 pre-accession economic programmes of acceding and other candidate countries: overview and assessment**

[http://europa.eu.int/comm/economy\\_finance/publications/enlargement\\_papers/elp20\\_en.htm](http://europa.eu.int/comm/economy_finance/publications/enlargement_papers/elp20_en.htm)

EUROPEAN ECONOMY. SPECIAL REPORT No 2 2002

**European integration and the functioning of product markets**

[http://europa.eu.int/comm/economy\\_finance/publications/european\\_economy/eespecialreport0202\\_en.htm](http://europa.eu.int/comm/economy_finance/publications/european_economy/eespecialreport0202_en.htm)

#### 2. Analytical documents

EUROPEAN ECONOMY. ECONOMIC PAPERS. No. 195.

Gabriele Giudice, Alessandro Turrini and Jan in 't Veld

**Can fiscal consolidations be expansionary in the EU? Ex-post evidence and ex-ante analysis**

This paper analyses non-Keynesian effects in fiscal consolidations in the EU.

[http://europa.eu.int/comm/economy\\_finance/publications/economic\\_papers/economicpapers195\\_en.htm](http://europa.eu.int/comm/economy_finance/publications/economic_papers/economicpapers195_en.htm)

EUROPEAN ECONOMY. ECONOMIC PAPERS. No. 196.

Heikki Oksanen

**Population ageing and public finance targets**

The paper incorporates intergenerational fairness into a framework to analyse long-term sustainability of public



finances under population ageing.

[http://europa.eu.int/comm/economy\\_finance/publications/economic\\_papers/economicpapers196\\_en.htm](http://europa.eu.int/comm/economy_finance/publications/economic_papers/economicpapers196_en.htm)

EUROPEAN ECONOMY. ECONOMIC PAPERS. No. 197.

Giuseppe Carone, Aino Salomäki

Herwig Immervoll and Dominique Paturot (OECD, Social Policy Division)

**Indicators of unemployment and low-wage traps (marginal effective tax rates on labour)**

This paper presents results of an on-going joint European Commission / OECD project, aimed at monitoring the direct influence of tax and benefit instruments on household incomes.

[http://europa.eu.int/comm/economy\\_finance/publications/economic\\_papers/economicpapers197\\_en.htm](http://europa.eu.int/comm/economy_finance/publications/economic_papers/economicpapers197_en.htm)

EUROPEAN ECONOMY. ECONOMIC PAPERS. No. 198.

Servaas Deroose, Sven Langedijk and Werner Roeger

**Reviewing adjustment dynamics in EMU: from overheating to overcooling**

This paper analyses how adjustment dynamics, in an environment with some degree of price and wage rigidity, may create and strengthen asymmetric developments in a monetary union.

[http://europa.eu.int/comm/economy\\_finance/publications/economic\\_papers/economicpapers198\\_en.htm](http://europa.eu.int/comm/economy_finance/publications/economic_papers/economicpapers198_en.htm)

EUROPEAN ECONOMY. ECONOMIC PAPERS. No. 199.

Andre Jungmittag (European Institute for International Economic Relations)

**Innovations, technological specialisation and economic growth in the EU**

The paper analyses the effects of innovations, technological specialisation and technology diffusion on economic growth and convergence of the EU countries from 1969 to 1998.

[http://europa.eu.int/comm/economy\\_finance/publications/economic\\_papers/economicpapers199\\_en.htm](http://europa.eu.int/comm/economy_finance/publications/economic_papers/economicpapers199_en.htm)

EUROPEAN ECONOMY. ECONOMIC PAPERS. No. 200.

Christoph Walkner

**Issues in corporate governance**

The objective of this paper is to review issues and problems arising in the area of corporate governance from a broader economic perspective at a time when a series of major corporate accounting fraud scandals has renewed interest in the subject.

[http://europa.eu.int/comm/economy\\_finance/publications/economic\\_papers/economicpapers200\\_en.htm](http://europa.eu.int/comm/economy_finance/publications/economic_papers/economicpapers200_en.htm)

### ***3. Regular publications***

**Euro area GDP indicator** (Indicator-based forecast of quarterly GDP growth in the euro area)

[http://europa.eu.int/comm/economy\\_finance/indicators/euroareagdp\\_en.htm](http://europa.eu.int/comm/economy_finance/indicators/euroareagdp_en.htm)

**Business and Consumer Surveys** (harmonised surveys for different sectors of the economies in the European Union (EU) and the applicant countries)

[http://europa.eu.int/comm/economy\\_finance/indicators/businessandconsumersurveys\\_en.htm](http://europa.eu.int/comm/economy_finance/indicators/businessandconsumersurveys_en.htm)

**Business Climate Indicator for the euro area** (monthly indicator designed to deliver a clear and early assessment of the cyclical situation)

[http://europa.eu.int/comm/economy\\_finance/indicators/businessclimate\\_en.htm](http://europa.eu.int/comm/economy_finance/indicators/businessclimate_en.htm)

**Key indicators for the euro area** (presents the most relevant economic statistics concerning the euro area)

[http://europa.eu.int/comm/economy\\_finance/indicators/key\\_euro\\_area/keyeuroarea\\_en.htm](http://europa.eu.int/comm/economy_finance/indicators/key_euro_area/keyeuroarea_en.htm)

**Monthly and quarterly notes on the euro-denominated bond markets** (looks at the volumes of debt issued, the maturity structures, and the conditions in the market)

[http://europa.eu.int/comm/economy\\_finance/publications/bondmarkets\\_en.htm](http://europa.eu.int/comm/economy_finance/publications/bondmarkets_en.htm)

**Price and Cost Competitiveness**

[http://europa.eu.int/comm/economy\\_finance/publications/priceandcostcompetitiveness\\_en.htm](http://europa.eu.int/comm/economy_finance/publications/priceandcostcompetitiveness_en.htm)

## IV. Key indicators for the euro area

<b>1 Output</b>		2001	2002	2003*	Sep-03	Oct-03	Nov-03	Dec-03	Jan-04	Feb-04
Industrial confidence <sup>1.1</sup>	Balance	-10	-12		-9	-8	-6	-8	-6	-6
Industrial production <sup>1.2</sup>	mom % ch	0.2	-0.9		-0.4	1.4	-0.1	0.1	-0.4	
		2001	2002	2003*	02Q4	03Q1	03Q2	03Q3	03Q4	04Q1
Gross domestic product <sup>1.3</sup>	Ann. % ch	1.5	0.8	1.8	1.1	0.7	0.1	0.3	0.6	
Gross domestic product <sup>1.3</sup>	Qtr. % ch				0.0	0.0	-0.1	0.4	0.3	
<b>2 Private consumption</b>		2001	2002	2003*	Sep-03	Oct-03	Nov-03	Dec-03	Jan-04	Feb-04
Consumer confidence <sup>2.1</sup>	Balance	-6	-11		-17	-17	-16	-16	-15	-14
Retail sales <sup>2.2</sup>	mom % ch	1.3	1.3		0.2	0.9	-1.7	-1.0	1.0	
		2001	2002	2003*	02Q4	03Q1	03Q2	03Q3	03Q4	04Q1
Private consumption <sup>2.3</sup>	qoq %ch.	1.8	0.6	1.7	0.3	0.4	0.0	0.2	0.1	
<b>3 Investment</b>		2001	2002	2003*	02Q4	03Q1	03Q2	03Q3	03Q4	04Q1
Capacity utilization <sup>3.1</sup>	%	83.5	81.2		81.5	81.1	80.8	80.7	81.2	80.7
Gross fixed capital formation <sup>3.2</sup>	Qtr. % ch	-0.3	-1.9	2.0	0.3	-0.9	-0.4	-0.2	0.6	
Change in stocks <sup>3.3</sup>	% of GDP	-0.2	-0.1	0.1	-0.1	0.2	0.3	-0.2	0.5	
<b>4 Labour market</b>		2001	2002	2003*	Sep-03	Oct-03	Nov-03	Dec-03	Jan-04	Feb-04
Unemployment <sup>4.1</sup>	%	8.0	8.2	8.3	8.8	8.8	8.8	8.8	8.8	
		2001	2002	2003*	02Q4	03Q1	03Q2	03Q3	03Q4	04Q1
Employment <sup>4.2</sup>	Ann. % ch	1.4	0.4	0.4	0.1	0.0	0.1	0.0		
Shortage of labour <sup>4.3</sup>	%	7.8	3.8		3.0	3.0	3.0	2.0		
Wages <sup>4.4</sup>	Ann. % ch	2.8	2.9	2.8	3.0	2.9	2.4	2.4		
<b>5 International transactions</b>		2001	2002	2003*	Sep-03	Oct-03	Nov-03	Dec-03	Jan-04	Feb-04
Export order books <sup>5.1</sup>	Balance	-14	-22		-25	-24	-19	-19	-19	-20
World trade <sup>5.2</sup>	Bn. EUR	6454	6309		521	509	507			
Exports of goods <sup>5.3</sup>	Bn. EUR	767.4	776.9	823.4	91.2	97.6	88.1	87.7		
Imports of goods <sup>5.4</sup>	Bn. EUR	802.2	781.6	828.1	82.0	88.0	83.0	82.0		
Trade balance <sup>5.5</sup>	Bn. EUR	-34.8	-4.7	-4.7	9.2	9.6	5.1	5.7		
		2001	2002	2003*	02Q4	03Q1	03Q2	03Q3	03Q4	04Q1
Exports of goods and services <sup>5.6</sup>	Qtr. % ch	4.3	0.7	6.1	-0.4	-1.5	-0.9	2.3	0.2	
Imports of goods and services <sup>5.7</sup>	Qtr. % ch	2.1	-1.6	6.2	0.3	-0.6	-0.4	0.8	2.1	
		2001	2002	2003*	Sep-03	Oct-03	Nov-03	Dec-03	Jan-04	Feb-04
Current account balance <sup>5.8</sup>	Bn. EUR	-12.3	9.6	11.0	7.7	8.0	2.1	2.5		
Direct investment (net) <sup>5.9</sup>	Bn. EUR	-104.6	-90.4		-9.6	-10.6	6.5	-1.8		
Portfolio investment (net) <sup>5.10</sup>	Bn. EUR	36.5	38.0		8.3	26.7	-4.3	-8.6		
<b>6 Prices</b>		2001	2002	2003*	Sep-03	Oct-03	Nov-03	Dec-03	Jan-04	Feb-04
HICP <sup>6.1</sup>	Ann. % ch	2.3	2.3	2.1	2.2	2.0	2.2	2.0	1.9	1.6
Core HICP <sup>6.2</sup>	Ann. % ch	1.9	2.5	2.0	2.0	2.0	2.0	1.9	1.9	2.0
Producer prices <sup>6.3</sup>	Ann. % ch	2.2	1.7		1.1	0.9	1.4	1.0	0.3	
Import prices <sup>6.4</sup>	Ann. % ch	102.2	102.4		102.3	101.9				
<b>7 Monetary and financial indicators</b>		2001	2002	2003*	Sep-03	Oct-03	Nov-03	Dec-03	Jan-04	Feb-04
Interest rate (3 months) <sup>7.1</sup>	% p.a.	4.3	3.3		2.2	2.1	2.2	2.2	2.1	2.1
Bond yield (10 years) <sup>7.2</sup>	% p.a.	5.0	4.8		4.2	4.3	4.4	4.4	4.2	4.1
ECB repo rate <sup>7.3</sup>	% p.a.	3.25	2.75		2.00	2.00	2.00	2.00	2.00	2.00
Stock markets <sup>7.4</sup>	Index	4047	3053		2553	2515	2618	2702	2839	2875
M3 <sup>7.5</sup>	Ann. % ch	5.3	5.6		8.0	7.7	7.5	7.0		
Credit to private sector (loans) <sup>7.6</sup>	Ann. % ch	7.9	7.7		5.0	5.1	5.6	5.5	5.5	
Exchange rate USD/EUR <sup>7.7</sup>	Value	0.90	0.95	1.13	1.12	1.17	1.17	1.23	1.26	1.26
Nominal effective exchange rate <sup>7.8</sup>	Index	91.5	95.1	106.2	105.8	107.6	107.4	110.4	111.1	110.7



Number	Indicator	Note	Source
<b>1</b>	<b>Output</b>		
1.1	Industrial confidence indicator	Industry survey, average of balances to replies on production expectations, order books, and stocks (the latter with inverted sign)	ECFIN
1.2	Industrial production	Volume, excluding construction, wda	Eurostat
1.3	Gross domestic product	Volume (1995), seasonally adjusted	Eurostat
<b>2</b>	<b>Private consumption</b>		
2.1	Consumer confidence indicator	Consumer survey, average of balances to replies on four questions (financial and economic situation, unemployment, savings over next 12 months)	ECFIN
2.2	Retail sales	Volume, excluding motor vehicles, wda	Eurostat
2.3	Private consumption	Volume (1995 prices), seasonally adjusted	Eurostat
<b>3</b>	<b>Investment</b>		
3.1	Capacity utilisation	In percent of full capacity, manufacturing, seasonally adjusted, survey data (collected in each January, April, July and October).	ECFIN
3.2	Gross fixed capital formation	Volume (1995 prices), seasonally adjusted	Eurostat
3.3	Change in stocks	In percent of GDP, volume (1995 prices), seasonally adjusted	Eurostat
<b>4</b>	<b>Labour market</b>		
4.1	Unemployment	In percent of total workforce, ILO definition, seasonally adjusted	Eurostat
4.2	Employment	Number of employees, partially estimated, seasonally adjusted	ECB/ Eurostat
4.3	Shortage of labour	Percent of firms in the manufacturing sector reporting a shortage of labour (unfilled job openings) as a constraint to production, seasonally adjusted	ECFIN
4.4	Wages	Not fully harmonised concept, but representative for each Member State (mostly hourly earnings)	ECFIN
<b>5</b>	<b>International transactions</b>		
5.1	Export order books	Industry survey; balance of positive and negative replies, seasonally adjusted	ECFIN
5.2	World trade	Bn; EUR, current prices, seasonally adjusted	ECFIN
5.3	Exports of goods	Bn. EUR, excluding intra euro area trade, fob	Eurostat
5.4	Imports of goods	Bn. EUR, excluding intra euro area trade, cif	Eurostat
5.5	Trade balance	Bn. EUR, excluding intra euro area trade, fob-cif	Eurostat
5.6	Exports of goods and services	Volume (1995 prices), including intra euro area trade, seasonally adjusted	Eurostat
5.7	Imports of goods and services	Volume (1995 prices), including intra euro area trade, seasonally adjusted	Eurostat
5.8	Current account balance	Bn. EUR, excluding intra euro area transactions; before 1997 partly estimated	ECB
5.9	Direct investment	(net) Bn. EUR, excluding intra euro area transactions	ECB
5.10	Portfolio investment	(net) Bn. EUR, excluding intra euro area transactions	ECB
<b>6</b>	<b>Prices</b>		
6.1	HICP	Harmonised index of consumer prices	Eurostat
6.2	Core HICP	Harmonised index of consumer prices, excluding energy and unprocessed food	Eurostat
6.3	Producer prices	Without construction	Eurostat
6.4	Import prices	Import unit values for goods	Eurostat
<b>7</b>	<b>Monetary and financial indicators</b>		
7.1	Interest rate	Percent p.a., 3-month interbank money market rate, period averages	Datastream
7.2	ECB repo rate	Percent p.a., minimum bid rate of the ECB, end of period	Datastream
7.3	Bond yield	Percent p.a., 10-year government bond yields, lowest level prevailing in the euro area, period averages	Datastream
7.4	Stock markets	DJ Euro STOXX50 index, period averages	Datastream

7.5	M3	Annual percentage growth rate of seasonally adjusted flows, moving average (3 last months): from 1997 onwards corrected for holdings by non-residents	ECB
7.6	Credit to private sector (loans)	Annual percentage change, MFI loans to euro area residents excluding MFIs and general government, monthly values: month end values, annual values: annual averages	ECB
7.7	Exchange rate USD/EUR	Period averages, until December 1998: USD/ECU rates	ECB
7.8	Nominal effective exchange rate	Against 13 other industrialised countries, double export weighted, 1995 = 100, increase (decrease): appreciation (depreciation)	ECFIN

---

Comments on the report would be gratefully received and should be sent to:

Servaas Deroose  
Director – Economy of the euro zone and the Union  
Economic and Financial Affairs Directorate-General  
European Commission  
Rue de la loi 200 BU1 0/209  
B-1049 Brussels

or by e-mail to [servaas.deroose@cec.eu.int](mailto:servaas.deroose@cec.eu.int) or [eric.ruscher@cec.eu.int](mailto:eric.ruscher@cec.eu.int)