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# EuropaWatch

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Economic Research Department



Strong investment, accompanied by encouraging gains in productivity, is the main driver of activity.

With the output gap entering positive territory and some upward pressures on inflation, the ECB will raise interest rates to 4.5%.



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*Closing date: June 1st 2007*

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## **This publication has been elaborated by:**

Sonsoles Castillo	34 91 374 44 32	s.castillo@grupobbva.com
Mario Alloza	34 91 374 60 01	mario.alloza@grupobbva.com
Maximiliano Dvorkin	34 91 537 76 93	maximiliano.dvorkin@grupobbva.com
Miguel Jiménez	34 91 537 37 76	mjimenezg@grupobbva.com
César Miralles	34 91 374 79 38	cesar.miralles@grupobbva.com

## 1. Editorial

In our previous issue we hinted the possibility that growth in Europe could surprise us positively and that the ECB could raise its reference interest rate beyond 4.25%.

Now we think that this possibility is materializing. The dynamism of activity in recent months makes us forecast that growth this year will not be very far from that recorded in 2006 (2.8%). Indeed, everything suggests that Europe will grow above its potential rate (which we estimate at above 2%) also in 2008.

We have additional arguments to be optimistic about the European economy. Our model-based tools for decomposing growth into its underlying factors suggest that current GDP growth is firmly based on supply factors. In addition, the recovery of productivity growth, which we recognize is to a large extent cyclical, is nonetheless considerable. We also think that the recent investment boom and structural reforms in past years, especially labour market reforms, are being reflected in higher potential growth, which could be further expanded if reforms were extended to services markets, enhancing competition and lowering entry barriers.

Indeed, investment growth is at present the main factor that is sustaining growth. This has been a relative surprise, given the signs of fatigue that it showed in the second half of 2006. Investment is reaccelerating and we expect that its current dynamism will continue during the coming quarters. Despite higher cost of financing investment projects, business climate continues to be very positive and expectations on profits for the next two years are quite favourable.

In the near future we still bet for a recovery of private consumption, although it is true that the latest figures have been disappointing. Our conjecture is based on fundamentals, on employment expectations as measured by our synthetic indicator of employment creation and on the projected growth of disposable income. A look at past expansive periods reveals that the delay of consumption in the current recovery is somewhat striking. We trust that the growing optimism reflected in consumer surveys and the presumably high degree of cumulated pent-up consumption in past years will surface in the months to come.

Our indicator of inflation risks suggests that the probability for inflation to surpass the ceiling of 2% has increased in recent months, although not by much. The latest data detect a deterioration of the more volatile components (energy and fresh food). In the medium term, and in a context of an output gap entering positive territory, demand-driven inflation risks seem to mount. On top of that, wage inflation pressures might start kicking in as productivity accelerates, since we know that wide dispersion in productivity growth is not matched in Europe by dispersion in wage increases. This structural shortcoming suggests that an eye must be kept on future wage developments.

From now on, the moves of the ECB will become less predictable, once interest rates become closer to neutral levels. The path of rate rises will depend more and more on incoming data, and the ECB wording for explaining its policy will presumably change. We think that rate rises will not stop at 4%; rates of 4.5% are appropriate given the current macroeconomic scenario and upwardly biased inflation risks.

## 2. Activity remains strong sustained by investment

The euro area continues to outperform and surprise on the upside in a less favourable global environment characterized by strong deceleration in the United States, euro appreciation, and recent tax hikes in Germany. These improvements are fully in line with our synthetic indicator for activity (IA-BBVA).

Growth in Europe is becoming more balanced, with supply factors adding to previous demand factors in generating activity in the region. However, the contribution of supply factors is still distant from that observed in past expansive episodes. A simple simulation exercise in Box 1 allows us to estimate the impact on growth from more or less permanent supply shocks in the Euro Area.

After a strong 2006, investment has positively surprised again in 2007/Q1. It will maintain its momentum this year and moderate somewhat in 2008.

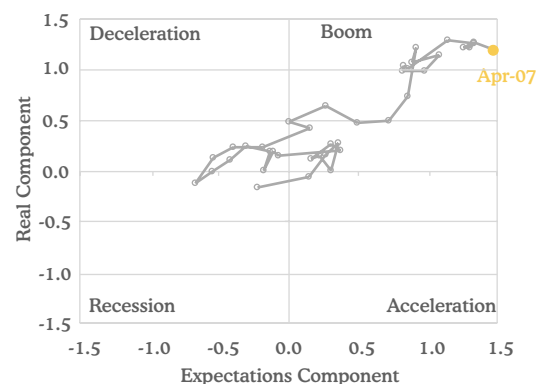
Among domestic demand components, investment growth was stronger than expected, growing at 7.2% (YoY) in 2007/Q1 in the euro area, and outperforming rates observed in 2006 (4.9%) and even those of the previous euro area expansion in 1999. This positive surprise is mainly explained by dynamic growth in equipment investment, but also by positive developments in construction investment.

Looking forward, data suggest that the dynamism of equipment investment will continue during this year: (i) business confidence has been very positive in several fronts (industry and construction), in particular in Germany, where we observe an extremely favourable environment as business confidence (IFO) reached historical peaks in April despite the recent appreciation of the euro; (ii) corporate profits are expected to maintain its pace of growth in 2007; (iii) firms' readiness to invest, as shown by their demand for loans and credit lines for fixed investment, is accelerating; and (iv) euro area net M&A inflows reached historic maximums in April 2007 at EUR 143bn, compared to average net outflows of around EUR 104bn in 2006. This turnout from net outflows to inflows is consistent with the very favourable business environment in Europe in a context of global moderation.

Surprisingly, the business climate has not been affected so far by the cost of financing (IFC), which has been increasing due to the steady tightening of monetary policy and to the recent rising trend of long-term bond rates. In particular, though long rates were previously sluggish in following policy rate hikes, now they are moving more in line with each other. We foresee that this increasing cost of financing will affect firms' confidence in the medium term, thereby moderating investment growth in 2008.

Regarding construction, growth has been strong in recent months, especially in Germany where it has been fuelled by very favourable weather conditions, but this pace does not seem sustainable in the medium term due to both demand and supply factors. Construction confidence reached a peak in September 2006 and has moderated since then. Household's credit demand for house purchases has slowed down to 8.6% in April, the lowest rate since November 2003. In addition, activity in the sector, as measured by our indicator for construction (IA-BBVA), is moderating.

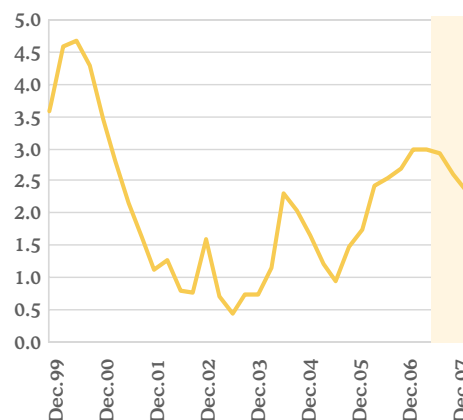
Chart 2.1.  
IA-BBVA UEM



Source: BBVA

Chart 2.2.  
ISA-BBVA UEM

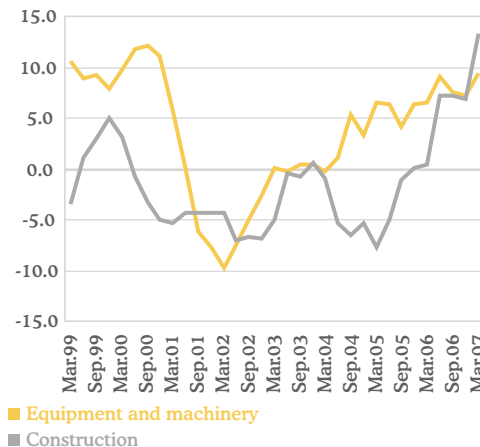
YoY rate



Source: BBVA

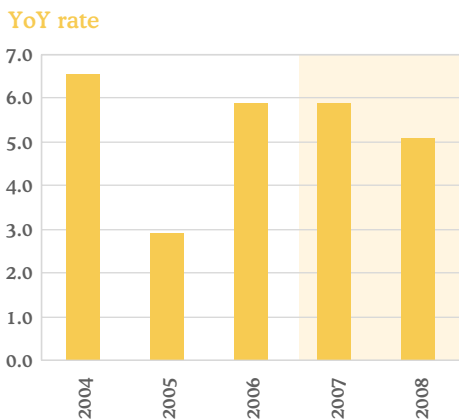
Chart 2.3.  
Germany: investment by components

YoY rate



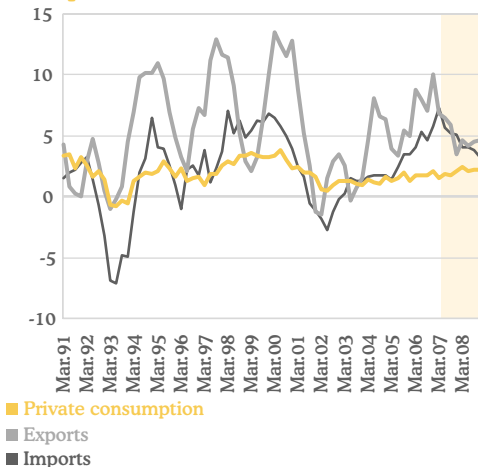
Source: Datastream and BBVA

Chart 2.4.  
Euro area: Corporate profits



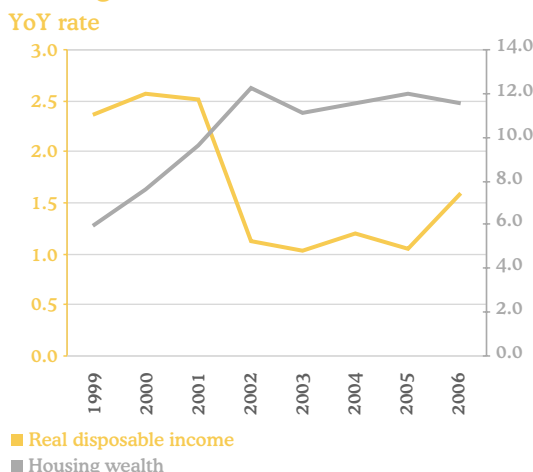
Source: Consensus forecast and BBVA

Chart 2.5.  
Euro area: Business cycle by main components



Source: Datastream and BBVA

Chart 2.6.  
Euro area: Real disposable income and housing wealth



\* Estimations as from 2004  
Source: Datastream, ECB and BBVA

**Private consumption continues to disappoint, especially in Germany. It should strengthen in the coming quarters, but not to the levels seen in previous expansions.**

In contrast, the lack of response of private consumption at this stage of the cycle is somewhat disappointing. Previous episodes of recovery in Europe have followed a classical pattern of export-led growth, followed by investment and then by consumption, with varying lags. This time, the pick-up of private consumption is taking time to be felt, with growth rates of 1.8% (YoY) in 2006 and of 1.2% (YoY) in 2007/Q1.

Our synthetic indicator for consumption (ISC-BBVA) points to a situation of under-consumption, and suggests also that there is more room for improvements in the immediate future. In addition, employment figures are very favourable, as suggested by our synthetic indicator for employment (ISE-BBVA). Decreasing credit demand for consumption does not point to substantial improvements over the coming quarters. Overall, we estimate that consumption in the euro area will grow at 1.8% in 2007 over the previous year, and then to accelerate to 2.3% in 2008.

The case of German private consumption, which dropped by 0.5% (YoY) in the first quarter of 2007 while the economy as a whole grew at 3.3%, is still more of a puzzle. What may be behind this drop? The impact of the VAT hike in January is clearly one, but only a partial explanation, since we did not observe an anticipation in consumption during last quarters in 2006 and the impact on inflation has been rather marginal. In addition, this correction seems to be inconsistent with incoming data on fundamentals, like stable real disposable income and the remarkable rise in housing and financial wealth (especially the latter, after several years of deterioration). In addition, consumers' confidence and employment expectations in the country are improving and stand at high levels. Overall, consumption expenditure should improve at some point in the largest euro area country.

**The net contribution of external demand will gradually become negative due to increasing growth in imports and less dynamic exports.**

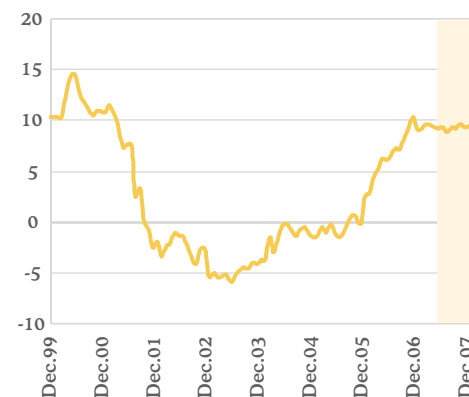
As for external demand, the effect of the past real effective appreciation of the euro has been fully offset by a more dynamic global growth, while the strong deceleration in the United States has been compensated by increasing diversification of extra-euro area exports, with a fall in the export share to United States and UK (from 17% in 1999 to 14% in 2007 and from 20% to 16%, respectively) and an increase in the share to Asia (18% to 20%). As a result, exports have been growing at 8.5% per cent in 2006 and 6.3% YoY in the first quarter of 2007.

The dollar/euro exchange rate is expected to fall slightly during this year to around 1.33 by December, and then remain close to that in 2008. This implies an effective real appreciation of the euro of 3% in 2007. With sustained growth of world trade, we forecast a continued strength of external demand in 2007 and a slight moderation in 2008. As import growth expands in line with internal demand pressures, the positive contribution of the external sector should disappear this year and turn negative in 2008.

## Some internal and external risks surround our projections.

This overall positive outlook results in a forecast of GDP growth of 2.7% in 2007 (surpassing our previous projection of 2.5%) and 2.4% in 2008. External risks around the baseline scenario are on the downside. On the internal front, our projected recovery of consumption could fail to materialize, but investment demand could also remain stronger than expected and drive up overall growth.

Chart 2.7.  
Euro area: Employment Synthetic Indicator



Source: BBVA

Table 2.1. Euro area: GDP growth and inflation forecasts

% YoY rates	1Q06	2Q06	3Q06	4Q06	1Q07	2Q07	3Q07	4Q07	2005	2006	2007	2008
Private consumption	1.7	1.7	1.7	1.9	1.2	1.9	1.8	2.1	1.6	1.8	1.8	2.3
Public consumption	2.2	1.7	1.9	2.2	1.9	2.2	1.8	2.2	1.4	2.0	2.0	2.0
Gross Fixed Capital Formation	4.3	5.5	4.8	5.9	7.2	6.0	5.2	5.1	2.8	5.1	5.9	4.2
Inventories (*)	0.1	0.1	0.6	-0.5	0.3	-0.1	-0.1	0.0	0.1	0.1	0.0	0.0
Domestic demand (*)	2.4	2.6	3.0	2.3	3.0	2.7	2.5	2.7	1.9	2.6	2.7	2.6
Exports	9.1	8.1	6.9	9.8	6.3	6.6	6.3	4.1	4.4	8.5	5.8	4.4
Imports	9.4	7.6	7.5	7.5	6.3	6.9	6.2	5.0	5.2	8.0	6.1	5.2
External demand (*)	0.0	0.3	-0.2	1.0	0.1	0.0	0.1	-0.3	-0.3	0.3	0.0	-0.3
GDP	2.4	2.9	2.8	3.3	3.0	2.7	2.6	2.4	1.6	2.8	2.7	2.4
Inflation	2.3	2.5	2.1	1.8	1.9	2.0	1.9	2.2	2.2	2.2	2.0	2.0

(\*) Contribution to growth  
Source: Eurostat and BBVA

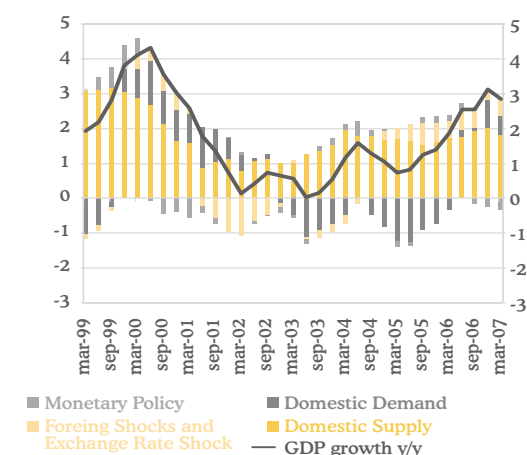
# What are the forces driving the last expansion?

Regarding economic activity, 2006 has been a remarkable year for the euro area. Several components have contributed to the high growth rates, like a very strong investment and a dynamic foreign sector. However, national accounts data only give us information about the realized (observed) response of the economy to the main underlying factors that move the economy. In this way, the evolution of GDP at each point in time is a consequence of the influence of different shocks, like technological progress, movements in foreign demand, and changes in the fiscal and monetary policy among others.

In order to identify these underlying forces that move the economy, we need to use an economic model (which is an analytical tool representing the different dynamics of the economic variables) that links the movements in the underlying factors to the observed economic variables. For this purpose we use a simple New Open Economy Macroeconomics model that takes into account the influence of domestic (idiosyncratic) shocks in the euro area and shocks coming from the rest of the world.<sup>1</sup>

According to the model, supply is the main force behind the evolution of growth, as can be seen in Chart 1. The moderate growth rates in the 2001-2005 period were a result of different forces acting at different times. On the one hand, in 2001 and early 2002, conditions outside the euro area negatively affected economic activity. The burst of the technological bubble and the subsequent correction in prices and investment affected demand and supply in the US which translated into low growth in the euro area. In turn, this was followed by a period of a depressed domestic demand in the Euro area that did not fully recover until the end of 2005 despite a positive contribution of the foreign sector.

**Chart 1**  
Euro area: GDP growth decomposition



Source: BBVA

The high growth rates of 2006 and the first quarter of 2007 were a result of three forces moving in the same direction: a recovered supply, a positive contribution from the foreign sector, and a rallying domestic demand since the last part of 2006. The model

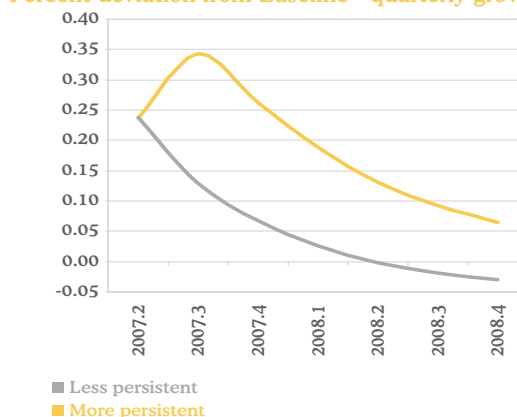
<sup>1</sup> The model is taken from Lubik, T. and F. Schorfheide; "A Bayesian Look at New Open Economy Macroeconomics" NBER Macroeconomics Annual, 2005. This is a model of two large countries, the Euro Area and the US, with nominal rigidities. It allows deviations from the law of one price and purchasing power parity. We updated the data up to 2007Q1.

identifies a more restrictive monetary policy since the end of 2006, with monetary shocks having a (small) negative contribution on GDP growth.<sup>2</sup> Supply factors have recovered from the burst of the technological bubble in 2001 and, since 2003, their contribution to growth has hovered between 1.5 and 2 percentage points.

In the model some factors have a more lasting effect on growth, while others have a more limited persistence and their effect eventually vanishes. Not only domestic demand and foreign shocks have a limited persistence, but some supply factors, than increase productivity, also have a short-lived effect. Chart 2 shows the responses of GDP growth to the less persistent and more persistent shocks to productivity, conditional on the data available by the first quarter of 2007.<sup>3</sup>

We can see from the graph that the more persistent productivity shock yield higher growth rates and for a longer period. On the other hand, the contribution of the less persistent shock is moderate and its effect is less lasting. Adding the results from this exercise in our baseline projections for the euro area, if a more persistent productivity shock hits the economy in 2007Q2, growth rates would be in the order of 3.1% for 2007 (2.7% in our baseline scenario) and 3.0% for 2008 (2.4% in our baseline scenario). However, if the less persistent shock hits the economy, then growth rates would be 3.0% in 2007 and 2.4 in 2008.

**Chart 2**  
Euro area: Impact of productivity shocks  
Percent deviation from Baseline - quarterly growth rate



Source: BBVA

This example tells us that it is a difficult task to address the question of whether the euro area productivity has recently risen in a way that growth rates will be higher in the medium term. Productivity could be temporarily high, with growth rates soon returning to "normal" levels. This issue will be clarified as more data becomes available.

Maximiliano Dvorkin  
maximiliano.dvorkin@grupobbva.com

<sup>2</sup> Note that the rather small contributions of monetary policy shocks to GDP growth are the sum of two factors. On the one hand, these shocks (defined as are deviations of the policy rate from the optimal reaction given by the Taylor rule in the model) are small. On the other, the ability of these shocks to affect growth is quantitatively small.

<sup>3</sup> The size of the less persistent shock is one standard deviation. The size of the more persistent shock has been calibrated to match the first period response of GDP to the other productivity shock. Since its size is slightly higher than its standard deviation, probability of occurrence is lower. Note that the response of the economy in the graph is the result of the shocks impulses and also of the existing conditions by 2007Q1, which departs slightly from the model's steady state.



### 3. The current concerns over inflation

**Our short term outlook for inflation has somewhat worsened as a result of increases in the more volatile components of HICP and of higher administered prices. By the end of 2007 euro area inflation should stand marginally above 2%.**

Recent developments in energy prices, weather conditions and institutional changes in education services in Germany have changed our inflation outlook for the Euro Area. These developments have slightly raised inflation during the past few months and will probably lead to higher rates in the future. Hence, we foresee the average HICP inflation rate at 2% in 2007 and 2008 (from a previous forecast of 1.8% for both years). Core measures have also been revised upwards, with an expected average of 2% for 2007 and 1.9% for 2008.

Higher-than-expected oil prices are pushing energy inflation upwards. We expected fundamentals to push oil prices to lower levels, but different demand and supply factors in energy markets, along with an increased uncertainty due to geopolitical risks, have kept oil prices high. Thus, the initially-expected contribution from energy prices to lower headline inflation in 2007 may even disappear if oil continues on its recent trend. In the short term, we expect the Brent price to moderate to 58 USD by the end of 2007 and to 50 USD by the end of 2008.

In addition, the fresh food component has experienced a sharp rise recently. An unusual warm winter, with record-beating warm temperatures and practically no-rainfalls, has confirmed the more pessimistic prospects for Western Europe's crops. Last April, average monthly temperatures in Germany reached 11.7 degrees, 4.4 above the historical average, while the hours of sunshine were 80 percent higher than the historical average for any April. A similar pattern has also occurred in France, Italy and the United Kingdom. As a result, the fresh food component of HICP recorded a significant increase in April, led by a 7% monthly growth in the price of vegetables in Germany and France.

**Other economic areas are also experiencing an acceleration of food prices. Is this a global phenomenon? Will the forces behind this pattern persist in the medium term?**

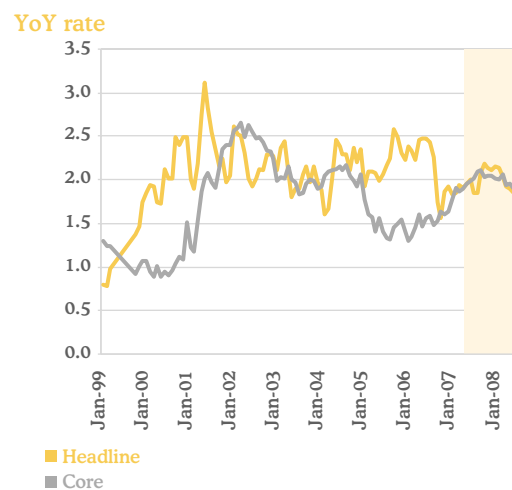
Beyond this transitory effect from unfavourable weather in Europe, other economic areas around the world (both industrialized and developing) have also experienced an increase in food prices.

Agricultural-commodity prices have notably accelerated recently due, in part, to a sharp increase in the demand of agricultural commodities. High growth in emerging economies and a renewed impulse on bio-fuels explain a large part of these developments. A noticeable example is corn price, which is now at a 10-year maximum. So far, soya bean prices have not followed this trend, but there are some signs of tensions on these prices as well. Overall, the medium term evolution of global food prices is a risk to inflation.

**Core inflation also points to slightly higher levels than previously expected. Our measures of core inflation have increased. The trimmed mean rose in April to 2.5% from a 2.4% in the first quarter, while the median inflation rose slightly to 1.9% from a 1.8%.**

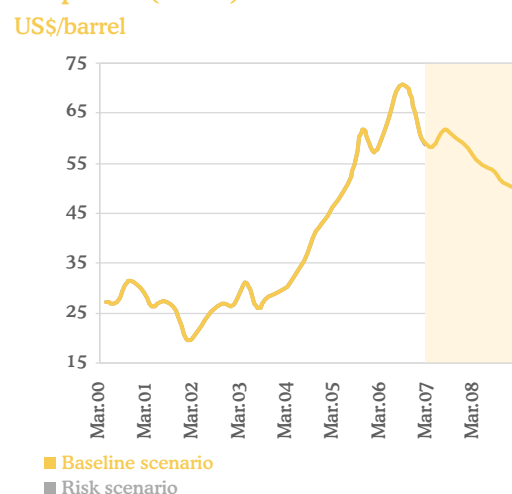
One main current driver of core inflation can be found the services component. In Germany, a Supreme Court decision has cleared the way for the introduction of university tuition fees. Some Länder have

Chart 3.1.  
Euro area: HICP



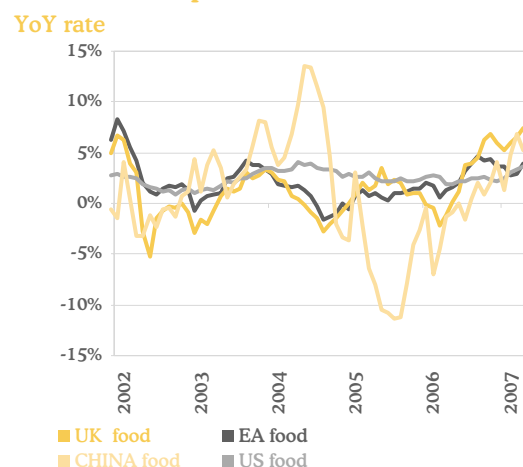
Source: Eurostat and BBVA

Chart 3.2.  
Oil prices (Brent)



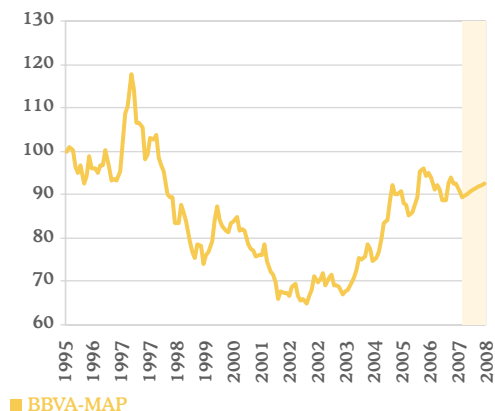
Source: Datastream and BBVA

Chart 3.3.  
CPI food component



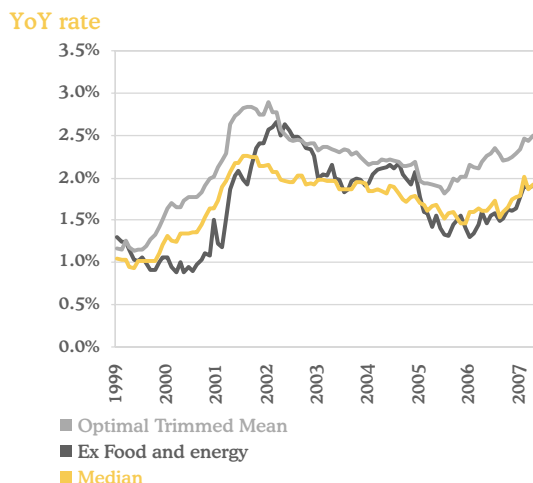
Source: Datastream

Chart 3.4.  
Index of agricultural commodities



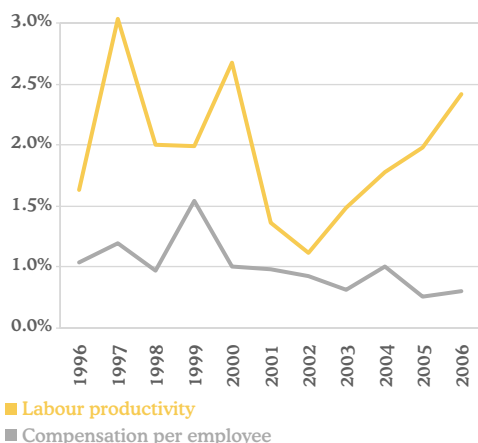
Source: BBVA

Chart 3.5.  
Euro area: core inflation measures



Source: Eurostat and BBVA

Chart 3.6.  
Euro area: productivity and compensation per employees  
(Std. deviation among sectors)



Source: ECB and BBVA

recently introduced them, resulting in a monthly increase of 25% in the education component of April's German inflation. In the Euro Area as a whole, education prices rose at a monthly rate of 6% in April. Some further increases may soon materialize, since other Länders are expected to introduce these fees (probably after the summer) and to extend them to a larger number of students.

The ECB has constructed indexes of administered prices.<sup>1</sup> In recent years, administered prices grew at higher rates than other components, making a positive contribution to the overall HICP inflation rate. In the first months of 2007, their contribution to annual HICP inflation has been around 0.4pp.

**The cyclical position of the euro area economy, the reduced slack and the limited sectoral wage differentiation with respect to productivity developments imply a positive bias to inflation.**

Our measures of the output gap show that slack capacity has narrowed sharply during 2006, and we expect a positive output gap for 2007 and 2008.<sup>2</sup> Capacity utilization has risen and now stands at 85%, at its peak since 1991. In addition, the tightening of the labour market continues. Unemployment reached 7.2% in March, only slightly above our measure of structural unemployment of 7% for 2007. On the firms' side, prospects of future hirings remain strong. Our BBVA Synthetic Employment Indicator has levelled off at high levels, but is still below the maximums of the previous cycle.<sup>3</sup>

Despite a tight labour market, wage moderation continues, relieving some of the risks on inflation. The latest wage negotiation rounds in the German industry were quite moderate: IG Metall (the trade union for metal industry sector in Germany) and Gesamtmetall (the employers association) reached a 19-months agreement setting a pay increase of 4.1% as from June 2007, and another 1.6% as from June 2008. We do not expect inflationary pressures to arise given the high productivity gains in the German industry. However, other concerns rise on the inflation risks coming from wages. There seems to be little dispersion on wage growth among economic sectors, despite the differences in productivity. In recent years the standard deviation of wage growth among sectors was less than 0.5%, while the standard deviation of productivity growth among sectors was almost 2% in 2006. The decoupling between wages and productivity pose some risks on inflation if low-productivity sectors seek wage increases similar to high-productivity sectors.

**The mild VAT effect on inflation lies behind the moderation in consumer's expectations on future prices. But expectations on future prices among producers remain high.**

The effect of the German VAT increase on prices has been lower than expected. We estimate that the VAT increase pushed January monthly inflation upwards by 0.4%, which translates into a 0.1% contribution to the monthly inflation rate in the euro area. After January, the VAT effect has been negligible, and consumers have internalized the mild VAT impact on prices. Consumer expectations over future prices have now returned to "normal" levels, with values close to those of early 2006. Producer's expectations on prices have slightly moderated, but still stand at high levels.

<sup>1</sup> The broad categories of administered prices are: Fully Administered Prices and Mainly Administered Prices. The fully administered prices are those directly set by the government, like public transport and education fees. Mainly administered prices are those on which the government or another national regulator has a very significant influence, like some utilities.

<sup>2</sup> See the article *Is potential growth picking up in the euro area?* in this number of EuropaWatch.

<sup>3</sup> The BBVA Employment Synthetic Indicator is a weighted sum of expected employment (hiring) in the Industry, Construction and Retail sectors. This indicator summarizes the tone of the demand in the labour market.

## 4. ECB: the tightening will continue up to 4.50%

We expect the ECB will increase interest rates to 4.50% by the end of the year.

In our previous issue we hinted the possibility that the ECB could raise its reference interest rate beyond 4.25%. Now we think that this possibility is more likely to materialize as far as macroeconomic outlook has been better than expected, the inflation forecast has slightly deteriorated in the recent months and in the medium term risks continue to be tilted on the upside.

From now on the next moves of the BCE will become less predictable, once interest rates become closer to neutral levels. The path of rate rises will depend more and more on incoming data ("facts and figures") and the ECB wording for explaining its policy will presumably change. We expect data to confirm our baseline scenario. Therefore, we forecast that the ECB will continue its current pace of tightening, increasing interest rates by 25 basis points both in the third and fourth quarter of this year. In this way, we expect this year to end with official rates at 4.50%. Markets are pricing a hike in September to 4.25% with a 100% probability, and another 25bp hike in December with more than 70% probability.

**Our indicator of inflation risk shows that the probability for inflation to surpass the 2% ceiling has increased.**

In the recent months, the inflation outlook has slightly worsened. Both our statistical and structural models to predict inflation point in that direction, and are now forecasting higher inflation levels.

Monetary policy not only needs to take into account the central projection for inflation (and output), but also the risks associated to that scenario, given that a more aggressive policy may be needed if risks are high. In order to evaluate risks to price stability we have updated our indicator of inflation pressures.<sup>1</sup> Chart 4.3 shows the probability that inflation will go beyond the 2% ceiling according to the forecasts from our estimated DSGE model. This indicator tells us that the risk of excess inflation is now higher than what the model predicted using data up to the fourth quarter of 2006, especially in the short run.

**Our indicator of Stance of Monetary Policy shows that rates of 4.50% would be appropriate.**

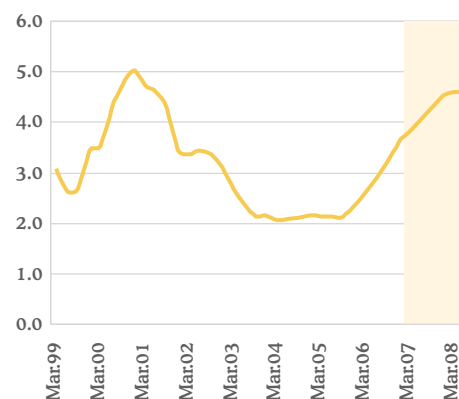
A few months ago, our indicator for the Stance of Monetary Policy showed that the increasing interest rate path of the ECB was compatible with the (implicit) objectives of the European Central Bank for the medium term.<sup>2</sup> By that time, the indicator was entering into the neutral policy area. With data up to the first quarter of 2007, our Stance of Monetary policy has changed only marginally, and continues in neutral zone, despite our forecasts for higher interest rates, now reaching 4.5%. Our new policy path shows that interest rates will be appropriate, given the better activity outlook and the slightly worse inflation outlook. In sum, our indicator, along with our economic analysis and the results from our analytical tools show that, in the baseline scenario, the inflation, growth and interest rates paths are consistent with the ECB's objectives.

<sup>1</sup> For a further reference to our DSGE model, see our EuropaWatch publication of February 2007.

<sup>2</sup> According to our indicator of the Stance of Monetary policy, the objectives of the ECB are inflation stabilization around 1.9% and growth around potential, this last objective with half the weight.

Chart 4.1.

Euro area: 3-month interest rate

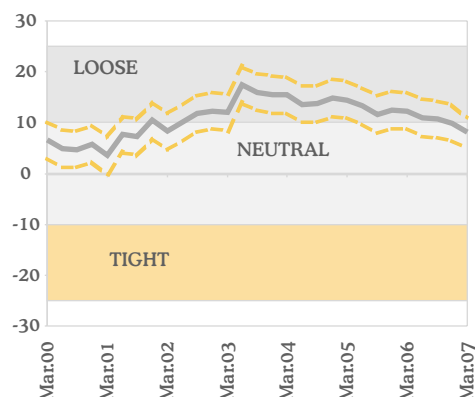


Source: ECB and BBVA

Chart 4.2.

Indicator ECB's Monetary Policy Stance

Output Weight = 0.5 ; Inflation Weight = 1.0

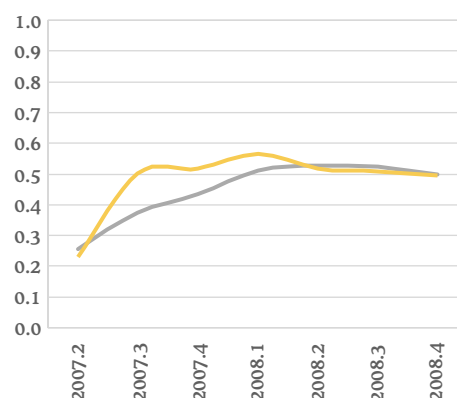


Source: BBVA

Chart 4.3.

Probability that inflation will be higher than 2%

(according to our estimated DSGE model)



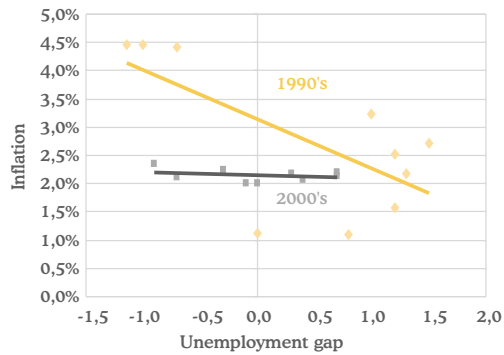
■ 2007/Q1

■ 2006/Q4

Source: BBVA

Chart 4.4.

### Euro area: a flattening relation between inflation and unemployment gap?



Source: AMECO and BBVA

A broader indicator of financial conditions, our index for monetary and financial conditions (IMFC), remains on the accommodative side. However, the recent increases in real long term bond rates and the appreciation of the euro have moved the index closer to neutral.

**In conducting monetary policy, some additional factors should be taken into account. The high growth rates of the monetary aggregates and globalization pose additional challenges to monetary policy.**

Recently there has been a rising concern on whether the dynamics of inflation have changed due to the increasing international integration of financial, goods and labour markets. The role of globalization and inflation has been analyzed in numerous studies and has been an active interest of central bankers, who have publicly addressed this issue in several speeches.

One of the potential consequences of globalization regards the short-run dynamics of the inflation process. Some recent empirical studies point to the apparent flattening of the short-run trade-off between inflation and domestic activity.<sup>3</sup> In other words, it is possible that domestic inflation has become less sensitive to the domestic output gap and potentially more sensitive to the world output gap. Therefore, globalization affects the traditional transmission channels of monetary policy, and policy decisions become more difficult.

Another challenge the ECB faces regards the role of monetary aggregates. The ECB's two pillar strategy is motivated by the premise that even if money has no systematic and immediate influence on prices, it can provide valuable and specific information on future inflation. However, in a context of increasing financial innovation there seems to be evidence of changing dynamics in money demand. Recent M3 developments (growing at rates over 10% per year) represent an example of these complex dynamics of monetary aggregates, which seems to be directly related to external financial assets.

In addition, the flattening of the yield curve is an alternative (and complementary) explanation for the sluggish response of aggregates to the monetary tightening, given that economic agents are switching to instruments with lower maturities.

<sup>3</sup> See Borio, C. and A. Filardo, "Globalization and inflation: New cross-country evidence on the global determinants of domestic inflation", BIS, working paper n° 227, 2007. For a further discussion, see also Ihrig, J., S. Kamin, D. Lindner, and J. Marquez, "Some Simple Tests of the Globalization and Inflation Hypothesis" *forthcoming*.

## 5. Special topic: Is potential growth picking up in the euro area?

**Miguel Jiménez**  
Economic Research Department

After several years of sub-optimal growth that followed the financial markets turmoils of 2001 and 2002, the euro zone economy is accelerating again. Average real GDP growth has risen from an average of 1.4 % in the period 2003-2005 to 2.8 % in 2006, and everything points to a similar result again in 2007, with an only moderate retrenchment in 2008. In principle, this improvement seems to respond to a classical cyclical expansion. But it is also legitimate to ask whether part of this upturn is not only cyclical but also due to structural factors, since we know that some structural reforms have been adopted in several euro area countries over the last years, particularly in the labour market, and indeed the unemployment rate has fallen considerably over the past three years with no noticeable additional inflation pressures. In addition, it is well known that the euro zone economy has lagged the US (and other European countries) in productivity growth since at least the mid-1990s (Timmer et al, 2007) and seems to have missed the technological advances enjoyed there during the 1990s. However, there are some early signs of recovery of productivity, although it is early to tell to what extent they are cyclical or structural. One possibility is that the euro area has failed to significantly adopt advances in information and communications technology (ICT) during the past decade (possibly due to structural shortcomings) but that these advances are being incorporated with some delay and will be translated to higher growth only during the current economic upturn. In short, all these observations suggest that it is worth questioning whether the euro zone is enjoying (or could enjoy in the near future) an increase in potential output that allows to maintain a higher growth performance than the one achieved over the past decade.

Our goal is to decompose potential growth for the euro zone and the largest European countries into their main components over the last four decades, paying special attention to recent developments in productivity growth, and to try to interpret those trends looking at the evolution of other structural characteristics of the economy. The natural choice for this exercise is the production function approach. We also look in detail at the most recent point estimates of potential growth trying to gauge if they show any signs of improvement, although such exercise is much more speculative by nature since distinguishing structural from cyclical movements at this stage of the cycle is not easy.

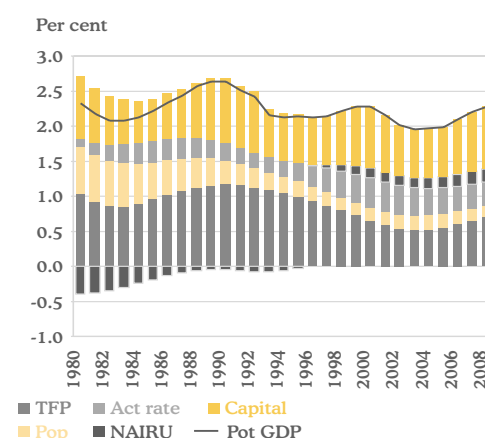
The estimation of potential output is regularly checked by the BBVA in order to estimate the output gap, which provides a guide for inflation pressures and constitutes a useful tool for macroeconomic policy analysis. Indeed, in 2005 EuropaWatch already presented an estimation of potential for the euro area with an array of different methods (Balmaseda et al, 2005). The present exercise is however narrower in scope (it only focuses on the production function approach), although it contains a richer decomposition of growth and looks at potential explanations of the factors involved. The goal is clearly to describe what has been sustaining output rather than to estimate very precisely the output gap for the latest quarters.

The next section outlines the decomposition of potential, while the annex briefly describes the methodology and data used and the accompanying Box looks in more detail at sectoral productivity, comparing the pattern in the euro area with that of the US economy in recent years.

### Euro area

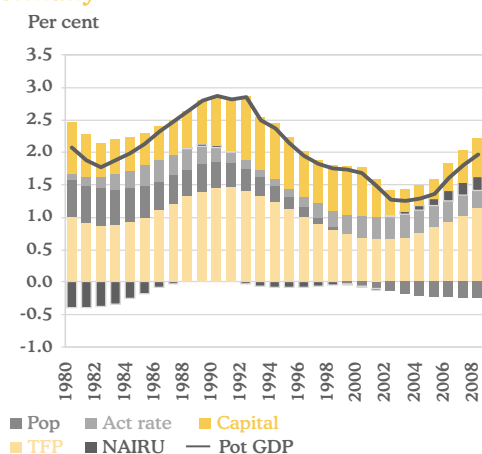
Potential growth in the euro area has been hovering around 2% in recent years, after decelerating from very high rates in the 1960s and 1970s. As it is well known, the main factor behind this long term reduction

Chart 5.1.  
Potential growth decomposition  
Euro area\*



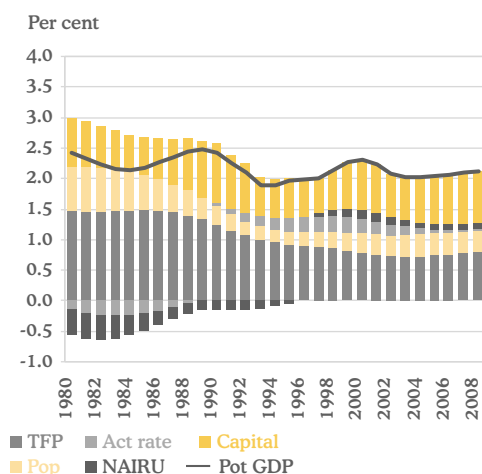
Source: European Commission and BBVA  
\* Slovenia is not included in our analysis

Chart 5.2.  
Potential growth decomposition  
Germany



Source: European Commission and BBVA

Chart 5.3.  
Potential growth decomposition  
France



Source: European Commission and BBVA

in potential output is declining TFP growth, which fell to about 1% by the 1980s and decelerated further as from the second half of the 1990s to very low levels now -slightly above 0.5%. Population growth is contributing little to potential (about 0.2 per cent points), after a much larger contribution in the 1970s associated to the incorporation of the baby-boom generation to the labour force. Despite the well known measurement problems, the contribution of the capital stock has been relatively stable over the whole period, although it has decreased in economic downturns following the investment cycle. As for the labour market, both the fall in structural unemployment and especially the increase in activity rates are contributing positively to potential growth –by more than half a percentage point jointly in 2006. The rise of activity rates is to a large extent a consequence of the expansion of female work, and has probably been reinforced recently by the arrival of immigrants to several countries in the area. Immigrants have in general higher participation rates than natives, and may also indirectly help to the incorporation of more women to the labour market through the provision of home services. The Nairu, after reducing potential growth for many years due to a mixture of labour market rigidities and negative shocks,<sup>1</sup> started to contribute positively in the mid-1990s thanks to reforms that started to be applied in those years, and especially to the expansion of dual labour markets in several countries, which despite being a sub-optimal model of labour relations have helped to improve the adjustment of employment at the margin.

For the coming years, it is projected that potential growth will improve and move slightly beyond the current level of 2.1%. First, total factor productivity has started to pick up and is expected to continue its recovery, and even if productivity is clearly a cyclical variable, part of this improvement could be structural (see accompanying Box). On the other hand, investment rates are high and capital is expected to grow further. The margin for improvement in the labour market is not large but is still positive: although population growth remains very slow and is likely to remain so despite positive immigration flows, the rate of structural unemployment is still sizeable in several countries in the area, while activity rates should continue their upward trend.

### Individual countries

The same decomposition for potential growth can be carried out for the largest euro area countries and the United Kingdom. In the euro area, the broad picture –a long term deceleration of total factor productivity growth and a changing pattern of contribution from labour market variables to potential- is repeated in all large countries. However, each country presents some particular features. In the very recent years, the recovery of productivity is most apparent in Germany, with a large jump in 2006 from 0.8% to 1.8% in the raw TFP growth series (before being smoothed to extract the structural improvements). In Italy and Spain TFP growth is also emerging from negative territory, although in the case of Italy it seems more certain that such improvement is structural. Other country-specific characteristics are the following:

•**Germany:** Potential growth has been more volatile than in the euro area as a whole, being lower at the beginning of the 1980s and especially after the mid-1990s. Although of course such fluctuations could be ascribed to cyclical rather than structural factors (in particular to a series of trend TFP growth which still fluctuates markedly), it is also due to very low rates of contribution from the capital stock in those two periods. As for the variables that determine the trend of the labour force, the available working age population growth started to subtract potential growth to the economy in 1998, whereas the reduction of structural unemployment has only had a positive effect as from 2002, following the first labour market reforms of the Schröder government. The

<sup>1</sup> See Blanchard and Wolfers (2000) as the seminal paper of a literature that explains unemployment developments in Europe as the interaction of shocks and structural rigidities.

prospects for the future seem positive, as the rebound of productivity seems strong and the capital stock is recovering, while both the activity rate and the Nairu are expected to continue to provide a positive contribution to potential growth.

•**France:** Potential growth in France seems to be stable around 2%, with few prospects of improvement over the immediate future. The contribution of population growth is larger than in the Euro area as a whole, especially in the 2000s, but the role of increasing participation and lower structural unemployment has been less positive in the 1990s. There are no clear signs of recovery of productivity in 2006, while the very slight pick of potential growth projected for 2007 and 2008 is the net result of a higher contribution of capital and a disappearing contribution of the participation rate.

•**Italy:** The picture for Italy has been noticeably worse than in the rest of the area since the beginning of the 1990s. There is no population growth, while TFP growth has become negative for several years in the 2000s and is now slowly recovering, and the contribution of capital is also below the euro area average. Labour market variables are sustaining potential growth. Both the reduction of structural unemployment in the 2000s and especially the increase in participation rate since the mid-1990s have increased the contribution of potential employment, partly due to the impact of a flexible dual labour market and to the contribution of immigration flows and labour market reforms in recent years.

•**Spain:** The broad picture is in this case different to other countries in the area in several respects. The secular fall of TFP growth has reached negative territory at the beginning of this decade, whereas the contribution of population growth has not dwindled in the 1990s and has been even reinforced since 1998 with the arrival of immigrants. As for labour market variables, the negative impact of both the Nairu and falling participation was more marked than in other countries, and the subsequent positive contribution has been much more substantial. No doubt part of these swings of structural labour market variables could be explained by what in fact is cyclical fluctuations, but it seems safe to say that a large share of the improvement is indeed structural, with dual labour markets, immigration and (in the case of raising participation) socio-economic variables explaining these trends.

In the **United Kingdom**, the picture is quite different: potential growth was not as high as in the rest of large European countries in the 1960s and 1970s, but recovered markedly in the 1980s and early 1990s (after a blip in those years that can be ascribed to low investment and labour participation rates). In the current decade, higher contributions from the working age population (no doubt helped by immigration flows), the capital stock and productivity growth have allowed to maintain potential growth above 2%.

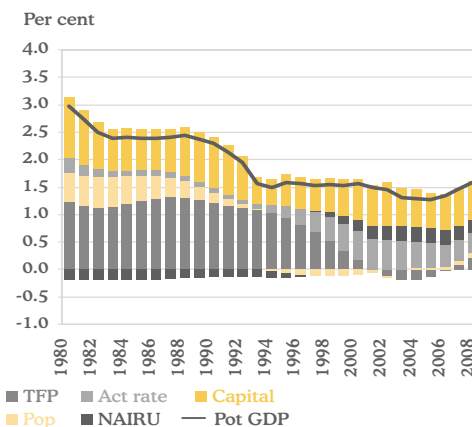
## Bottom line

Potential growth is increasing in the euro area, pushed by gains in total factor productivity and by higher investment. Improvements in Germany seem to be behind this trend, while gains in other large countries are much less visible. Although periods of acceleration in productivity have always a strong cyclical component, it seems clear that the increase is there, at least in manufacturing sectors. By countries, these gains in productivity seem to be more that temporary in Germany, and possibly in Italy. In any case, any conclusions about structural improvements need to be taken with caution.

## References

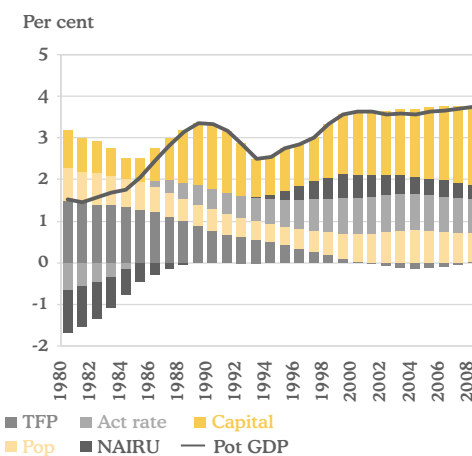
- Balmaseda, M., J.F. Izquierdo and E. Nieto (2005), "EMU: cyclical or structural weaknesses?" EuropaWatch, July, BBVA, Madrid.
- Blanchard, J.O. and J. Wolfers (2000), "The Role of Shocks and Institutions in the Rise of European Unemployment: The Aggregate Evidence", Economic Journal, 110 (462).
- Timmer, M.P., M. O'Mahony and B van Ark (2007), "EU KLEMS Growth and Productivity Accounts: An Overview", EU-KLEMS Working Paper series, No. 16.

Chart 5.4.  
Potential growth decomposition  
Italy



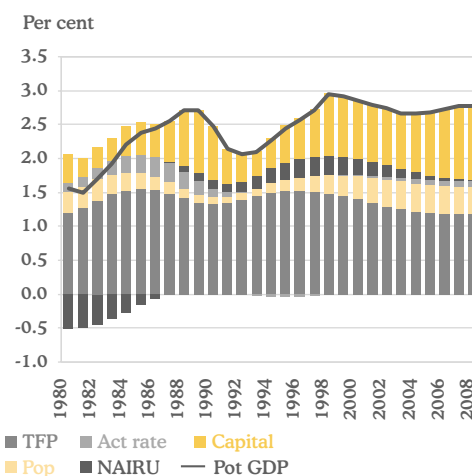
Source: European Commission and BBVA

Chart 5.5.  
Potential growth decomposition  
Spain



Source: European Commission and BBVA

Chart 5.6.  
Potential growth decomposition  
UK



Source: European Commission and BBVA

# Recent productivity performance: Could the euro area emulate the US productivity boom of the 1990s?

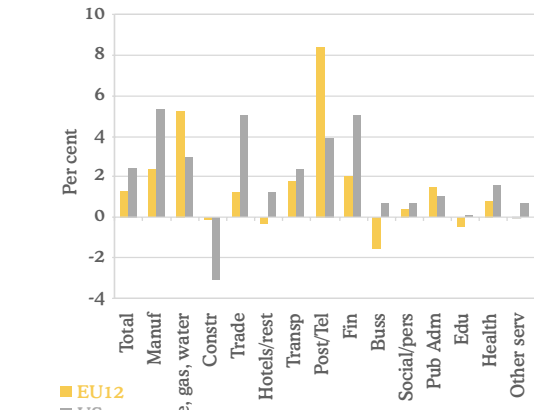
Data on total factor productivity growth are very volatile, and therefore the recent upswing of productivity is difficult to interpret. On top of that, both total factor and labour productivity are procyclical variables, so it is hard to say if the improvement has a structural component. Here we look at sectoral data on labour productivity growth, and compare it to the US, in order to check if the sectoral pattern that caused the US productivity boom in the 1990s is being replicated now in Europe, providing early signs of recovery in productivity. The data used (in Charts 1 and 2) come from the KLEMS database, which contains a very detailed sectoral decomposition for both the US and many European countries, and cover up to 2004.

- In Europe, labour productivity has been outstanding in utilities (Post and telecoms; electricity, gas and water). It has improved since the mid-1990s and has grown more than in the US. This is mostly due to privatisation and reforms in these areas, partly pushed by the European Union. No such trend is visible in the US, apart from large improvements in telecoms.
- In all other sectors, productivity growth has been much higher in the US than in Europe, with the exception of public administration where there are important measurement issues.
- In the US, the productivity boom had a strong effect on manufacturing, trade, post and telecoms and financial services, but not on other services (which includes legal services, renting, real estate, computer services).
- In Europe, apart from the two sectors mentioned above, only manufacturing has had average labour productivity growth of over 2%.

More recent (but less detailed) data from the ECB (Chart 3) point to a rebound of productivity in manufacturing as from mid-2005, and to a lower extent in trade, hotels, transport and telecoms (taken as a whole, since no data exist for these sectors individually). There is no improvement in financial and other services (as a whole).

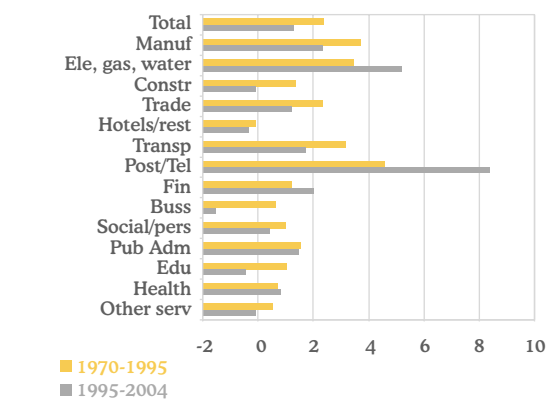
**Bottom line:** The extensive literature on the US productivity boom since the mid-1990s agrees that most of the expansion was due to higher productivity growth in sectors that produce information and communication technologies (ICT). Recent data show that this pattern could be replicated in Europe, where productivity in manufacturing, which includes among others ICT goods but also other technological goods, has been growing fast. However, in order to consolidate this trend, and to catch up with US productivity performance, gains have to be translated also to service sectors, in part through the extension of ICT as a production input and through the production restructuring that usually accompanies such a process. In this respect, lowering entry barriers and improving competition in those sectors should be a policy priority.

**Chart 1**  
Euro area vs. U.S. labour productivity growth (1995-2004)



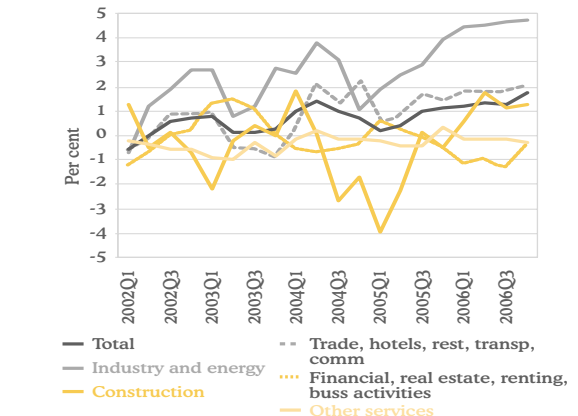
Source: KLEMS and BBVA

**Chart 2**  
Sectoral breakdown in euro area labour productivity growth



Source: KLEMS and BBVA

**Chart 3**  
Recent productivity development (sectoral breakdown)



Source: ECB and BBVA



## Annex: method and data

Being an unobservable variable, potential growth is notoriously difficult to estimate. There are two broad approaches: time series methods that try to disentangle the trend (identified with potential) from other components of GDP (cycle, seasonal or irregular); and the production function or “structural” approach, which is more theoretically loaded as it makes assumptions about the factors that shape aggregate potential output and tries to calculate their relative contribution to growth. The separation between both approaches is not clear-cut, and there are methods that share elements from both of them. Some authors also add information on inflation through Phillips-curve type equations, such that those periods of higher than potential production are associated with those of accelerating inflation. The relative advantages of both methods have been widely discussed in the literature. In essence, it is usually considered that statistical methods are more “atheoretical” and less dependent on the arbitrary choices implicit in the production function approach, whereas the structural method requires setting those choices a priori but allows to better explain what lies behind potential growth and to use information from data on production factors. At the same time, statistical methods (like the widely used Hodrick-Prescott –HP-filter) are more unstable at the end of the estimation period, which is precisely the most interesting period for policy analysis. However, the production function approach is not free from this shortcoming, as in practice some input series used as explanatory factors are smoothed with such filters in order to discard their more volatile “cyclical” component.

The framework proposed here is based on a production function approach. The economy is assumed to be represented by an aggregate production function where value added is decomposed into labour, capital and disembodied technical change (total factor productivity growth). There is perfect competition in both output and input markets and constant returns to scale, such that the relative contributions of labour and capital to value added can be proxied by their relative participation in national revenue. This assumption is standard in the literature of potential growth and seems to provide a good approximation. We decompose labour into three variables: the working age population (ages 15 to 64), the activity rate and the employment to labour force ratio (one minus the unemployment rate). The growth of potential output is therefore equal to the sum of potential growth of all these components, weighted by the appropriate revenue shares:

$$\Delta PIB^* = \alpha \Delta Pop^* + \alpha \Delta AR^* + \alpha \Delta (1 - UR^*) + (1 - \alpha) \Delta K + \Delta TFP^*$$

where starred variables indicate structural or trend components of their respective variables. Consistent with normal practice (European Commission, OECD), the capital stock (K) is taken as such in the potential output

equation, since it is relatively stable over time. The activity rate (AR), population (Pop) and the unemployment rate (UR) are much more cyclical by nature, and are smoothed with a HP filter and a lambda factor of 100 (appropriate to annual series). Many of the efforts of the potential output literature go to properly estimate the trend or structural unemployment rate or Nairu, defined as the one which is not inflationary, by means of a Phillips curve-type relationship. However, since more sophisticated methods seem to give very similar results to the simple smoothing of the series with a standard filter and a very accurate estimation of the output gap in the most recent period is not our primary goal, we opt for the simpler method. TFP growth is calculated as a Solow residual and also smoothed with an HP filter in order to obtain a trend series of productivity growth. Due to the volatility of TFP growth series, the estimation of potential for the recent past and the prospects for future quarters are very sensible to the correct estimation of this component.

The data are taken from the most recent annual macroeconomic series published by the European Commission (AMECO), which includes historical and two years ahead projections of all the variables required, including the net capital stock, which is calculated using the perpetual inventory method.

## 6. Summary of Forecasts

### Germany: GDP growth and inflation forecasts

YoY rate	2004	2005	2006	2007	2008
Private consumption	-0.3	0.3	0.9	0.9	2.0
Public expenditure	-1.3	0.6	1.5	1.5	1.4
Gross Fixed capital formation	-1.4	1.0	6.5	8.2	4.9
Inventories (*)	0.3	0.2	-0.2	0.0	0.0
<b>Domestic Demand (*)</b>	<b>-0.4</b>	<b>0.6</b>	<b>1.8</b>	<b>2.4</b>	<b>2.4</b>
Export	8.8	7.1	13.4	7.2	5.5
Import	6.2	6.7	11.9	7.9	6.6
<b>Net export (*)</b>	<b>1.2</b>	<b>0.4</b>	<b>1.2</b>	<b>0.1</b>	<b>-0.2</b>
<b>GDP</b>	<b>0.8</b>	<b>1.1</b>	<b>3.0</b>	<b>2.5</b>	<b>2.2</b>
<b>Inflation</b>	<b>1.7</b>	<b>2.0</b>	<b>1.7</b>	<b>1.9</b>	<b>1.7</b>

(\*) Contribution to growth  
Source: BBVA

### France: GDP growth and inflation forecasts

YoY rate	2004	2005	2006	2007	2008
Private consumption	2.7	2.5	2.7	2.4	2.2
Public expenditure	2.3	1.0	1.6	2.0	2.1
Gross Fixed capital formation	3.2	4.0	4.1	4.0	3.7
Inventories (*)	0.4	0.1	0.0	0.0	0.0
<b>Domestic Demand (*)</b>	<b>3.1</b>	<b>2.6</b>	<b>2.7</b>	<b>2.6</b>	<b>2.5</b>
Export	3.4	3.0	6.5	5.0	4.5
Import	6.5	5.5	7.9	5.7	5.2
<b>Net export (*)</b>	<b>-0.9</b>	<b>-0.7</b>	<b>-0.5</b>	<b>-0.3</b>	<b>-0.3</b>
<b>GDP</b>	<b>2.3</b>	<b>1.8</b>	<b>2.2</b>	<b>2.3</b>	<b>2.2</b>
<b>Inflation</b>	<b>2.1</b>	<b>1.7</b>	<b>1.7</b>	<b>1.5</b>	<b>1.7</b>

(\*) Contribution to growth  
Source: BBVA

### Italy: GDP growth and inflation forecasts

YoY rate	2004	2005	2006	2007	2008
Private consumption	0.7	0.6	1.5	2.0	1.9
Public expenditure	1.6	1.5	-0.3	1.5	1.6
Gross Fixed capital formation	1.3	-0.2	2.4	3.3	3.0
Inventories (*)	-0.1	-0.1	0.4	0.0	0.0
<b>Domestic Demand (*)</b>	<b>0.9</b>	<b>0.5</b>	<b>1.7</b>	<b>2.2</b>	<b>2.1</b>
Export	2.7	0.0	5.5	3.6	3.2
Import	2.0	1.0	4.5	4.0	3.5
<b>Net export (*)</b>	<b>0.2</b>	<b>-0.3</b>	<b>0.2</b>	<b>-0.1</b>	<b>-0.1</b>
<b>GDP</b>	<b>1.0</b>	<b>0.2</b>	<b>1.9</b>	<b>2.1</b>	<b>2.0</b>
<b>Inflation</b>	<b>2.2</b>	<b>2.0</b>	<b>2.1</b>	<b>1.9</b>	<b>2.0</b>

(\*) Contribution to growth  
Source: BBVA

### Spain: GDP growth and inflation forecasts

YoY rate	2004	2005	2006	2007	2008
Private consumption	4.2	4.2	3.7	3.3	2.9
Public expenditure	6.3	4.8	4.4	4.3	4.1
Gross fixed capital formation	5.0	7.0	6.4	5.7	4.2
Equipment	3.7	8.8	9.5	10.4	6.7
Construction	5.5	6.0	5.8	4.1	2.4
Others products	4.4	7.7	3.3	3.0	5.0
Inventories (*)	0.0	0.0	0.1	0.0	0.0
<b>Domestic demand (*)</b>	<b>4.9</b>	<b>5.2</b>	<b>4.8</b>	<b>4.4</b>	<b>3.8</b>
Export	4.1	1.5	6.3	4.9	4.9
Import	9.6	7.0	8.4	5.4	5.5
<b>Net export (*)</b>	<b>-1.7</b>	<b>-1.7</b>	<b>-1.0</b>	<b>-0.6</b>	<b>-0.7</b>
<b>GDP</b>	<b>3.2</b>	<b>3.5</b>	<b>3.9</b>	<b>3.8</b>	<b>3.1</b>
<b>Inflation</b>	<b>3.0</b>	<b>3.4</b>	<b>3.5</b>	<b>2.5</b>	<b>2.7</b>

(\*) Contribution to growth  
Source: BBVA

# Summary of forecasts

## Euro area (YoY)

	2002	2003	2004	2005	2006	2007	2008
<b>GDP at constant prices</b>	<b>0.9</b>	<b>0.8</b>	<b>1.8</b>	<b>1.6</b>	2.8	2.7	2.4
Private consumption	0.9	1.2	1.4	1.6	1.8	1.8	2.3
Public consumption	2.4	1.8	1.4	1.4	2.0	2.0	2.0
Gross Fixed Capital Formation	-1.5	1.1	1.9	2.8	5.1	5.8	4.2
Inventories (*)	-0.3	0.2	0.2	0.1	0.1	0.0	0.0
<b>Domestic Demand (*)</b>	<b>0.4</b>	<b>1.5</b>	<b>1.7</b>	<b>1.9</b>	<b>2.6</b>	<b>2.7</b>	<b>2.6</b>
Exports (goods and services)	1.6	1.1	6.4	4.4	8.5	5.9	4.4
Imports (goods and services)	0.3	3.1	6.3	5.2	8.0	6.1	5.2
<b>External Demand (*)</b>	<b>0.5</b>	<b>-0.7</b>	<b>0.1</b>	<b>-0.3</b>	<b>0.3</b>	<b>0.0</b>	<b>-0.3</b>
<b>Prices and costs</b>							
CPI	2.2	2.1	2.1	2.2	2.2	2.0	2.0
CPI core	2.5	2.0	2.1	1.5	1.5	2.0	1.9
Industrial Prices	-0.1	1.4	2.3	4.1	5.1	2.7	2.0
<b>Labour Market</b>							
Employment	0.7	0.4	0.7	0.8	1.4	1.5	1.2
Unemployment rate (% of labour force)	8.3	8.7	8.8	8.6	7.9	7.3	7.3
<b>Public Sector</b>							
Surplus (+) / Deficit (-) (% GDP)	-2.5	-3.0	-2.8	-2.4	-1.6	-1.0	-0.8
<b>External Sector</b>							
Current Account Balance (% GDP)	0.7	0.4	0.6	-0.3	-0.6	-0.4	-0.2

\* Contribution to growth

## International environment (YoY)

	Real GDP growth (%)				Inflation (%)			
	2005	2006	2007	2008	2005	2006	2007	2008
US	3.2	3.3	2.3	2.8	3.4	3.2	2.2	2.4
UK	1.9	2.6	2.7	2.4	2.1	2.3	2.3	1.9
Japan	1.9	2.2	2.0	2.3	-0.3	0.3	0.5	1.0
Latam*	4.7	5.4	4.4	4.2	6.0	5.1	5.2	5.4

\* Argentina, Brazil, Chile, Colombia, Mexico, Peru, Uruguay and Venezuela. Inflation forecast: end of period

## Financial variables (end of period)

	Official rate (%)				10 year interest rate (%)			
	05/31/07	Sep-07	Dec-07	Jun-08	05/31/07	Sep-07	Dec-07	Jun-08
Euro zone*	3.75	4.25	4.50	4.50	4.4	4.4	4.5	4.5
US	5.25	5.25	5.25	5.25	4.8	4.8	4.8	4.9

	Exchange rate (vs euro)				Brent			
	05/31/07	Jun-07	Dec-07	Jun-08	05/31/07	Dec-07	Dec-08	
US	1.35	1.34	1.33	1.33	\$/b	68	58	50

\* 10 year interest rate refers to German bonds

## For more information please contact:

Servicios Generales Difusión BBVA Gran Vía 1 planta 2 48001 Bilbao P 34 944 876 231 F 34 944 876 417 www.bbva.es

### Economic Research Department:

Chief Economist:  
José Luis Escrivá

Unit Heads:  
Europe and Financial Scenarios: Mayte Ledo  
Scenarios and Financial Systems: Carmen Hernansanz  
Spain and Sectorial Analysis: Julián Cubero  
Europe: Sonsoles Castillo  
Quantitative research and development: Rodolfo Méndez

Latam and Emerging Markets: Giovanni Di Placido  
Argentina: Ernesto Gaba  
Chile: Miguel Cardoso  
Colombia: Juana Tellez  
Peru: Hugo Perea  
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