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EuropaWatch

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Economic Research Department

Tensions in financial markets will impinge on Euro Area activity. But there is substantial uncertainty about what the impact will be.

Although very negative scenarios cannot be ruled out, supporting factors to growth should limit the downside risks.

In the course of 2008, as headline inflation moderates, the ECB will be bound to cut interest rates.

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1. Editorial

Our prospects for near term growth in the Euro Area are gloomy. The most recent data in our IA-BBVA indicator point to growth below potential in 2008. This negative outlook is the result of a combination of three main shocks: the unexpected hike in oil prices, the appreciation of the Euro and the consequences of the financial markets turmoil since the summer.

Oil prices have risen by about 35% when measured in Euros since the beginning of the year and by 20% since June. Besides possible temporary impacts on inflation, a continued upward trend might have non-negligible effects on consumption and investment. For the time being, the impact of the euro appreciation on exports has been relatively mild. However, the levels reached by the euro in recent months may begin to erode exports and, indirectly, other components of demand. With regard to the persistence of deviations in the oil price and the euro, we believe that in the medium term they will revert to more fundamental levels, although in the short run they could deviate further.

The key risk, however, is related to the persistence of the financial turbulence originated last summer by problems of liquidity and losses associated to non-performing sub-prime mortgages in the United States. This shock has been deeper and more permanent than initially projected, and its effect is likely to continue. As a result of the financial turmoil, financial institutions, particularly those in Europe, have encountered serious difficulties in obtaining funding. This situation has been addressed through injections of cash by central banks, but tensions remain. Credit conditions in the Euro Area have deteriorated. Banks have stated that they have tightened up conditions for granting loans to businesses and mortgages. Banks have also indicated that they expect this situation to get worse in the near future. Hence, it is only a matter of time until we see the impact of these negative credit restrictions on private sector consumption and investment, as banks will be worried about maintaining their capital base and will be reluctant to expand credit.

We have carried out a quantitative analysis of the possible impact of a credit shock on key Euro Area variables. Our estimates indicate that a 1% reduction in the total amount of credit to the private sector (measured in real terms) is likely to induce a contraction on economic activity. The response of real GDP to the credit shock is not immediate and it is estimated that, a year after the shock, the cumulated quarter on quarter growth rate of GDP will be about -0.5 percent points below the baseline. The slowdown in economic activity leads to a moderation of inflation, while the nominal interest rate falls by almost 75 basis points in order to counteract these negative effects on activity and prices. We also find a negative response from both consumption and investment to sector specific credit shocks, with a more rapid and persistent response in the latter case. The quantitative investigation has been complemented with a qualitative analysis using a DSGE model that incorporates financial market variables. We conclude that financial market frictions might give rise to a 'financial accelerator' effect that could amplify the impact of initial changes in credit conditions. Moreover, the dynamic effects of a credit shock on the economy are likely to depend on the persistence of the shock itself. Identifying the persistence of these shocks is thus crucial, and therefore central banks should be very careful in these situations, since policy errors could be very costly.

This brings us to the more practical matter of deciding monetary policy in the Euro Area. We have estimated that activity is headed to a deceleration in the current quarter and during the first half of 2008. GDP growth could fall from 2.6% on average in 2007 to 1.8% in 2008, and then recover to 2.1% in 2009. Risks on activity are clearly on the downside, especially during the first half of 2008. They are linked to negative effects from the financial market turmoil, which could be reinforced by a more intense slowdown in the US and the persistence of high energy prices and an appreciated exchange rate. The Euro Area economy enjoys, however, of several support factors that make it resilient against all those shocks: strong employment generation, high corporate profits and improvement in potential growth. So, we expect growth will slow down temporarily and in a moderate magnitude. Inflation, a prominent objective of the ECB, has recently surprised on the upside, as food prices have risen more than expected. However, we believe that inflation pressures are only temporary and that risks of second round effects are small. We expect that, as downside risks on activity become predominant and worries about inflation vanish, the ECB will cut interest rates next spring by 25 basis points. As uncertainty increases and financial turbulences persist, the time for the ECB to wait and see is certainly waning.

2. Prospects for the Euro Area: How will it cope with growing downside risks?

2.1 Growth perspectives in the euro area have worsened over recent months as the economy has been hit by financial, exchange rate and oil price shocks. But the peak of the current cycle had been reached before financial turbulences started during the summer.

Our last Europa Watch, published in June, presented an optimistic view of the Eurozone economy, as fundamentals seemed to be strong and growth had been robust during 2006 and the first quarter of 2007. Exports and investment were leading the cycle, whereas consumption was finally expected to recover once the impact of the German VAT hike at the beginning of the year disappeared. On the supply side, we identified new gains in productivity, which led us to update our estimate of potential growth for the euro economy to beyond 2%.

However, the situation since June has substantially deteriorated. GDP growth was a disappointing 0.3% (Q/Q) in the second quarter, partly because of lower effective working days not recorded by standard calendar adjustment methods. Although growth has rebounded and has reached a solid 0.7% in the third quarter, most indicators suggest that the peak of the current business cycle was reached during the spring. Our IA-BBVA indicator suggests that growth in the fourth quarter is bound to decelerate to about 0.4%, and is likely to remain below potential at the beginning of 2008.

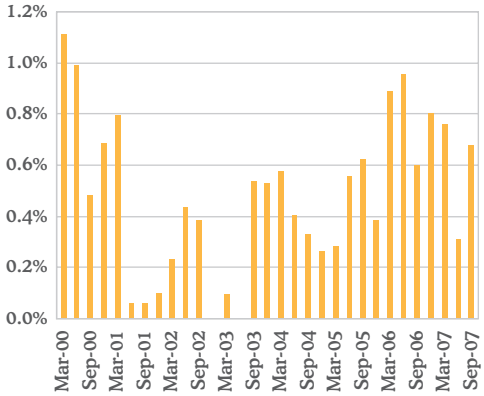
The prospects for the coming months are gloomy, as the economy has been hit by three interacting negative shocks, coming from financial markets, exchange rates and oil prices, respectively. To that, we could add the risk of lower than expected growth in the United States if problems linked to housing and financial markets end up affecting private consumption, which would also impact the European economy.

Confronting these risks, but also the negative inflation surprises from last month, the ECB faces a dilemma of what to do with monetary policy after having postponed their announced rate rise in September. Our view is that growth concerns will dominate over inflation risks, and the ECB will cut interest rates further next spring.

Financial markets' turbulence could start to impact real activity through the credit and the confidence channel, as household indebtness and firms' dependency on credit are high.

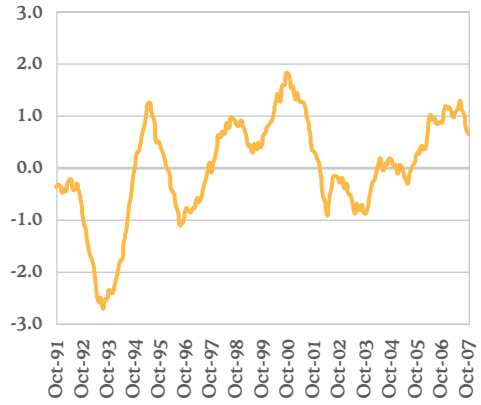
The financial turmoil started in early August triggered by doubts on the quality of some assets. These doubts have spread uncertainty among investors and financial market institutions, prompting them to cumulate more liquid assets and to drastically reduce interbank lending. Interest rate spreads in money markets in the middle of the yield curve have risen, forcing central banks around the world to intervene through a combination of liquidity injections in money markets, relaxation of collateral requirements for their lending to particular institutions or reductions of policy interest rates. The ECB has only used the first of these three options, but it has postponed for the time being the interest rate rise that had been announced for September.

Chart 2.1.
EMU GDP growth
% q/q



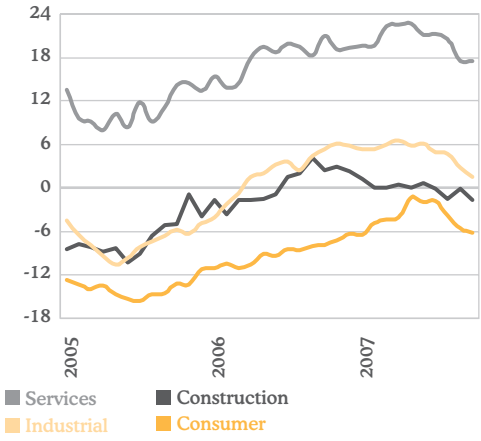
Source: Eurostat

Chart 2.2.
IA-BBVA UEM



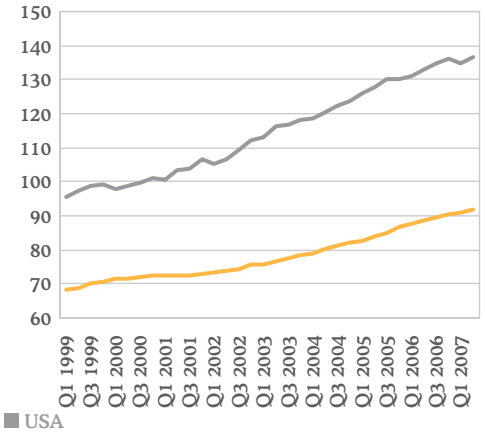
Source: BBVA

Chart 2.3.
Confidence by sector



Source: European Commission

Chart 2.4.
Household debt
% Gross disposable income



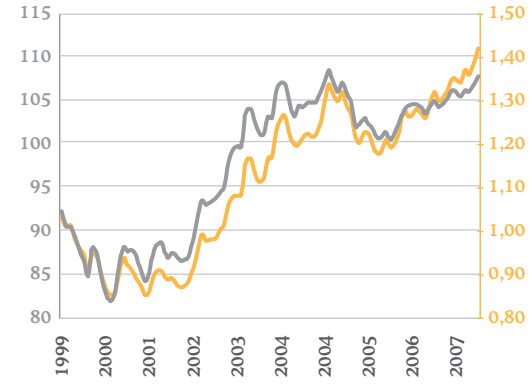
Source: US Fed and Eurostat

The impact of financial market problems on the real activity has been limited thus far. Growth in the third quarter has surprised positively, both in the US and in Europe. But the financial market shock has negatively affected sentiment of both consumers and businesses, particularly in the Euro Area, although confidence indicators remain still in positive territory (where more agents have an optimistic perception of the economic outlook than a pessimistic one) and above historical standards. This deterioration had already started around May, suggesting that the peak of the cycle had indeed been reached before the start of the strains in financial markets, but has accelerated since September across a wide range of indicators.

Apart from their effect on confidence, the direct impact on financial market turbulence has been felt through the tightening of credit conditions. Credit growth to households and enterprises remains dynamic, but the results of different Bank lending surveys, recorded by the ECB, the Federal Reserve and the Bank of England corresponding to October, clearly show that banks have moved in that direction, mostly to enterprises. The announcement of write-offs by several banks suggests that banks will be more worried about maintaining their capital base than about expanding lending, which could restrain credit magnitudes in the coming months. For the situation to return to normality, it is key that spreads in wholesale markets, which have surprised by their level and persistence, return to normal levels.

The tightening of credit conditions will probably affect consumption and investment, since both enterprises and households are heavily dependent on credit (see section 3), as reflected by their indebtness levels. Firms' debt has expanded from around 65% in 1999 to 85% by mid-2007. Over the last 18 months this ratio has increased by 5 per cent points of GDP. Household debt has increased in recent years from 75% of gross disposable income by the end of 1992 to 92% in the second quarter of 2007, accelerating until early 2006 and moderating its pace since then. However, these levels are much lower than in the US (135%). Furthermore, debt expansion has gone in parallel to the improvement of housing wealth and stock markets, and thus it is necessary to look at debt together with those assets that it has helped to finance in order to gauge the relative strength of families' financial position. In this sense, households' financial position is not excessively worrying, as net financial wealth (financial assets less debt) has grown at two-digit rates since 2004 and has improved as a share of disposable income until 2006.

Chart 2.5.
Exchange rate developments



Source: Datastream and BBVA

The appreciation of the euro *vis-à-vis* the dollar (and other currencies linked to the dollar to a varying degree) will have an impact on the external sector of the Euro zone.

The rise of the euro against the US dollar has been going on since the end of 2005, from under 1.18 $/€ to 1.42 $/€ on average in October. This has translated into a substantial appreciation in real effective terms, as the euro has also risen against other currencies (in Asia and elsewhere) which are effectively pegged to the dollar, or are not allowed to appreciate much. The trend towards a more expensive euro is not new, and can be traced back even further, to 2001, if one abstracts from the period of depreciation in 2005. But the appreciation has been accelerating. In nominal terms, it has been larger in the year to October (12.8%) than in the previous 12 months (5%), and during November it has jumped to 1.47 against the dollar, pulled by growing concerns on the US economy related to the

combination of weaker activity, huge foreign liabilities and a large current account deficit.

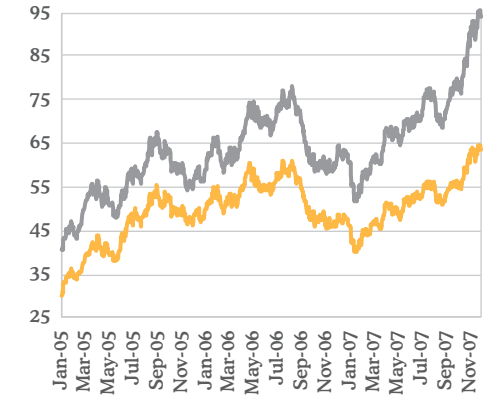
The appreciation since 2001 did not seem to damage euro zone exports in recent years, which were particularly robust in 2006 as the strength of the currency was compensated by a very favourable environment in emerging countries. Exports in real terms have increased by 6.2% in the first half of 2007, after growing at 8% in 2006. However, the new heights reached by the euro and the softening of world trade have raised concerns about their impact on Euro Area activity. Our calculations with a variable coefficient Bayesian VAR model show that at a 3% nominal effective appreciation of the euro would have a statistically significant impact of -0.5 percent points on GDP growth in the Euro Area (see Box 1). These concerns are behind recent public statements by European authorities on the advantages of a "strong dollar" for the US economy, on the excessively low level of some Asian currencies or, more directly, on calls to the ECB to actively manage the exchange rate to favour export growth.

Oil prices have increased more than expected

Oil prices were around 60$/barrel at the end of 2006 and, after temporarily receding at the beginning of this year, have accelerated to around 95 $/barrel by the end of November, gathering speed after the summer. This implies an increase of 55% during the course of this year, although the euro appreciation has allowed containing this rise to 35% for the euro zone in local currency. Several factors explain this hike in prices. Outside the OPEC, problems of maintenance of oil platforms in the North Sea have temporarily reduced supply in the area, whereas within the OPEC more discipline in maintaining production has been aparent in recent months. Rising political uncertainties are, however, the most likely explanation of recent price trends. They are linked to a growing probability of a rapid military intervention in Iran, and to the possibility of a Turkish intervention in North Irak.

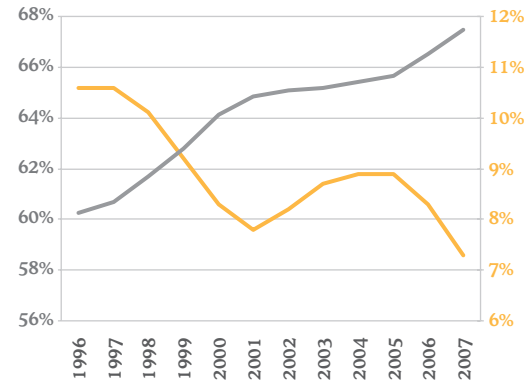
In economic terms, the major macroeconomic impact of sudden oil price rises relates inflation (see below), but their effect on growth through lower consumption should not be dismissed.

Chart 2.6.
Crude oil price



Source: Datastream

Chart 2.7.
Labour market developments



Source: European Commission

Box 1: Impact of an exchange rate shock on Euro Area activity: results from a Bayesian SVAR model

Since the beginning of 2006, the Euro has shown a steadily appreciation against most important currencies. In particular, it has gained about 20% of value with respect to the US$. When measured in real effective terms, the increase with respect to the 42 major Euro-Area trade partners has been of about 7%. This trend, if continued for a long period of time, might have some relevant impact on activity in the medium-to-longer term. However, the size as well as the timing of this negative path is still subject to controversies related to different methodological considerations.

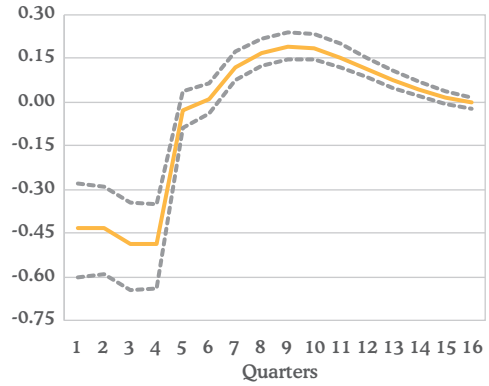
A prominent study by Angeloni et al. (2003) summarizes the literature on monetary policy transmission (including the exchange rate channel) and suggests that a 5% appreciation of the nominal effective exchange rate would reduce real GDP growth between 0.45 and 0.91 percentage points (pp) after one year. These results, however, are highly dependent on the model used (ECB area wide model vs. Eurosystem macroeconomic model simulations). More recently, a relevant article by Hanh (2007) stresses the implications of an exchange rate shock using a VAR model. This author finds a similar impact, such as that an appreciation of 1% in the nominal effective exchange rate would reduce real GDP growth by 0.11pp in the first year.

This note quantifies the impact from an unexpected exchange rate shock on the Euro Area economy by using a Structural Vector Autoregressive (SVAR) Model identified from a time-varying-coefficients Reduced-Form Bayesian Vector Autoregressive Model. This allows for the consideration of time-varying coefficients and possible structural breaks[1]. The set of endogeneous variables included in the model are the following: real GDP, inflation, nominal short-term interest rates, and the nominal euro effective exchange rate[2]. Our sample covers from Q1/1982 to Q3/2007. In order to compute impulse-response functions, the exchange rate shock is identified through two assumptions: exchange rate and interest rate do not react contemporaneously to GDP and inflation shocks, and interest rate does not response instantaneously to an exchange rate shock.

Charts 1 and 2 show the effect of a standard shock —a 3% appreciation— on the exchange rate. The responses of both annual real GDP growth and inflation are found to be relatively sharp in the short-term (first year). In particular, GDP growth is estimated to fall 0.4pp on average during the first 4 quarters, while inflation 0.2pp.

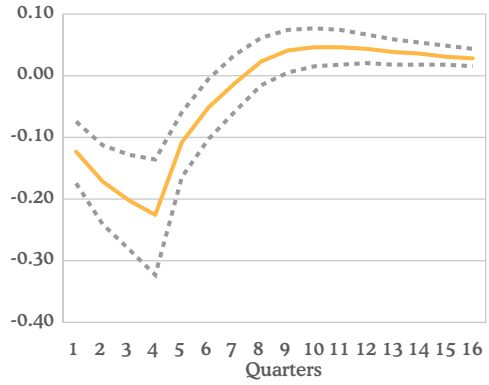
In addition, and with some time lag, our exercise shows how monetary policy would react to a moderation in activity and inflation. In fact, as shown in chart 3, interest rates decrease by 30-40 basic points after four quarters. As a result of this accommodation in monetary policy, the negative impact from a euro appreciation on activity gradually fades away. All in all, the exercise suggests that in the absence of any reaction from the central bank, an appreciation of the Euro is likely to have a significant negative impact on economic activity.

Chart 1
Response of GDP to an exchange rate shock
Deviation from baseline (pp.)



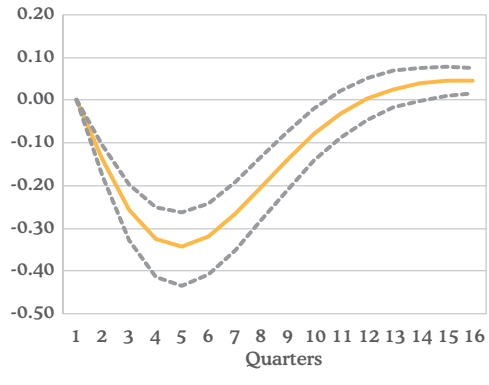
Note: from a 3% appreciation in nominal effective terms
Source: BBVA

Chart 2
Response of prices to an exchange rate shock
Deviation from baseline (pp.)



Note: from a 3% appreciation in nominal effective terms
Source: BBVA

Chart 3
Response of interest rates to an exchange rate shock
Deviation from baseline (pp.)



Note: from a 3% appreciation in nominal effective terms
Source: BBVA

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[1] We allow for a structural break in 1995 (based on statbility tests results).
[2] Against the major 42 euro area trade partners. The exchange rate and real GDP enter in levels (logs), while prices in annual rate and interest rates in percent.

2.2 The Euro Area economy enjoys, however, of several support factors that make it resilient against all those shocks:

• Strong employment generation

The inability to generate employment and to reduce very high employment rates to normal levels was one of the key defficiencies of the European economy in the 1980s and part of the 1990s. However, the scenario has changed markedly in recent years.

Structural reforms carried out in countries like Germany and Italy, and previously in the Netherlands, Denmark and Spain, allowed to attain relatively rapid employment growth in the Euro zone. In particular, the average employment growth between 2005 and 2007 has accelerated to 1.5% per year, from 0.9% in the period 2000-2005, although a good share of this improvement has been cyclical. The elasticity of employment with respect to GDP growth has also improved as a result of reforms, particularly in Italy after 2000 (from 0.51 to more than 2) and in Germany after 2005 (from -0.26 in the period 2000-05 to 0.43 in 2005-07).

The result has been a higher employment rate in Europe, rising from 60% of the working age population in 1995 to 67% this year. At the same time, the unemployment rate has dropped to 7.3% from more than 10.5% in the mid-nineties. This improvement constitutes an important support factor for consumption, although it has not been accompanied by disposable income, which has been sluggish in recent quarters.

The main reason is that employees' compensation has not been growing much in parallel to employment. On the one hand, the reduction in the unemployment rate has been achieved through the incorporation to the job market of workers with lower than average skills and productivity. On the other, wage moderation over recent years, probably due to the internalization of inflation expectations by economic agents and to competitive pressures from the globalization process (more competition from Asian exports abroad and from immigration inside Europe) has helped to create employment, but has also compressed wage revenues. Therefore, households have not fully enjoyed the expansion of recent years and disposable income has grown by less than nominal GDP.

• High corporate profits

European enterprises generate a relatively high gross operating profit, near 12% of GDP. One of the reasons is that productivity growth has improved, but also real wage growth has been moderate, and thus unit labour costs have been relatively low with respect to inflation, allowing firms generating more cash flow to expand investment.

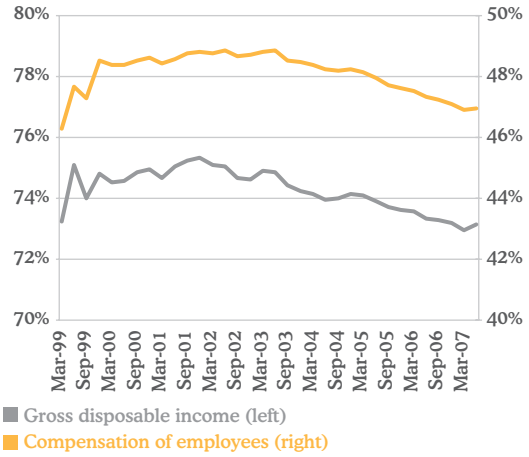
• Improvement in potential growth

As we pointed out in the previous issue of Europa Watch, our estimation of the growth potencial for the Eurozone economy has increased from around 1.9% in 2003 to near 2.2% now. Although this type of estimation is difficult to make in real time, since it is difficult to distinguish trend from cyclical growth, everything points to an improvement of total factor productivity growth which should be durable, as it reflects the impact of improvements in ICT investment applied to new sectors. At the same time, higher investment and activity rates and lower unemployment rates have also fuelled potential growth. In principle, this new level should be maintained over the coming years.

2.3 Our growth projections are made under the assumption that the euro and crude oil prices moderate somewhat from their current high levels, and the US economy will experience lower growth in the first half of 2008.

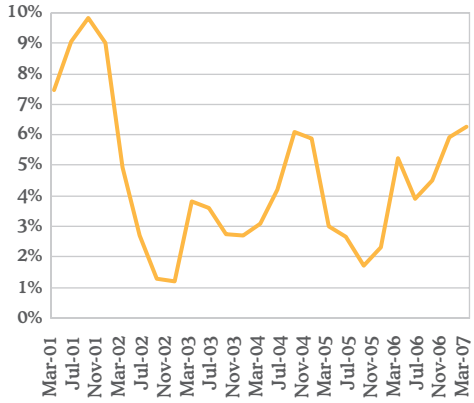
In principle, our projections are based on the hypothesis that the aforementioned shocks do not worsen and revert to a certain extent

Chart 2.8.
Disposable income
% GDP



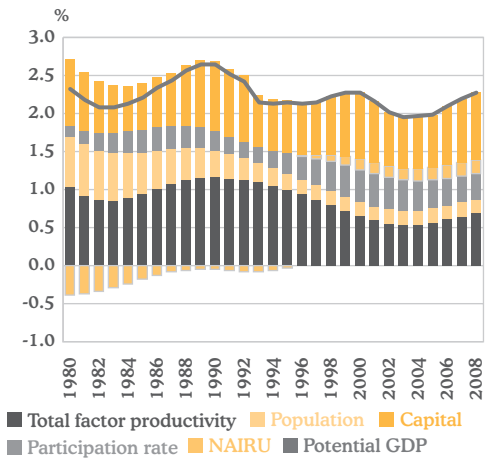
Source: Eurostat

Chart 2.9.
Net operating surplus
Growth %



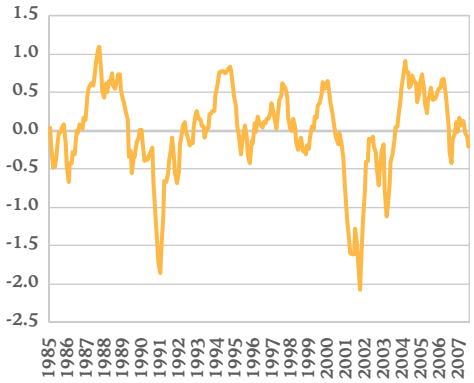
Source: Eurostat

Chart 2.10.
Potential growth decomposition - EMU



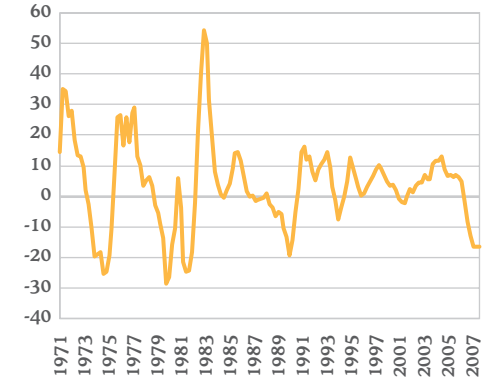
Source: BBVA

Chart 2.11.
BBVA USA Monthly Activity Index
(3MA)



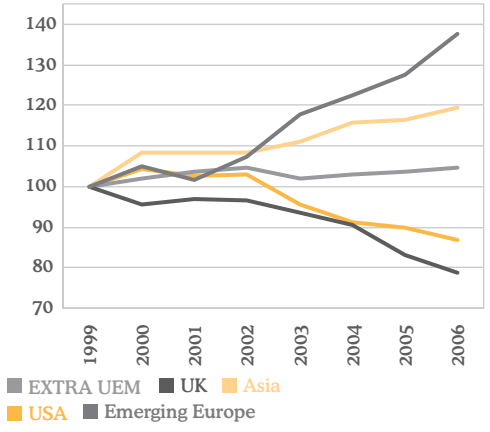
Source: BBVA

Chart 2.12.
US Residential Investment
(yoy % change)



Source: US BEA

Chart 2.13.
Extra-eurozone exports by trading partner
1999=100



Source: Eurostat

to levels more according with fundamentals. The prospects in the medium term are for oil prices to moderate, as technical problems on supply are only temporary and the political uncertainty slowly disappears as the next US presidential elections approach, dissipating the risks of intervention in Iran. Prices should go back to near 70 dollar/barrel when exceptional supply conditions of recent quarters return to normal conditions, by the end of 2008. As for the dollar/euro exchange rate, it is expected to stop rising and to return to 1.42 by the end of 2008.

On the external environment, a key issue regards the evolution of the US economy, as emerging economies have so far avoided major problems thanks to their large accumulation of reserves and to more orthodox macroeconomic policies. In addition to the financial turmoil, the US economy is exposed to the fall in housing activity and prices, which could have a sizeable impact on consumption. Latest GDP data suggest that the adjustment in the housing sector continues, and the trough in housing has not been reached yet. This adjustment, together with the most recent oil price hike (which has had a larger impact in the US than in Europe since it has not been compensated by the currency appreciation), results in lower growth expectations for the near future, with a recovery as from the end of 2008 as the dollar depreciation helps to gradually correct the large current account deficit. In addition, employment growth is a support factor for consumption, in a context of an adjustment in housing wealth. Hence, under our baseline scenario, the US economy is expected to grow on average at 2.2% in 2008, after closing 2007 at 2.1%, although this apparent stability hides a valley at the end of 2007 and the first half of 2008. This scenario incorporates an additional reduction of interest rates by 25 basis points in order to reduce negative growth risks.

Under these circumstances, growth will slow down temporarily from now on until mid-2008, and then recover over the medium term. On average, GDP in the euro area should grow by 1.8% in 2008 and by 2.1% in 2009.

Euro Area growth should maintain its moderate decelerating path that started in the spring during the fourth quarter of this year and the first half of 2008, and then start to recover. All demand components should moderate, starting with exports, which will slowly reflect the impact of the euro appreciation and will only recover as from 2009. Fixed capital investment, a dynamic component in 2006 and 2007 (growing at 5.4% and at close to 4.5%, respectively) will lose momentum in the face of weaker demand prospects and stricter credit conditions, with a substantially lower contribution from construction investment in those countries that enjoyed a housing boom during the past decade. Private consumption will accelerate in annual terms (once the base effect from the VAT hike in Germany disappears) but will remain somewhat sluggish, growing at less than 2%, due to a vanishing wealth effect and, like investment, to more rigid credit conditions. On average, annual GDP growth could decelerate from 2.6% projected for this year to 1.8% for 2008, and could then recover to 2.1% in 2009, close to potential growth.

The disaggregation of these figures by country incorporates an important deceleration in those countries that have enjoyed of high growth in recent years (Spain, Ireland), although in general they should grow above the average. In Germany, growth is expected to be similar to that of the area average, edging down from high rates in 2006 and 2007 to 1.8% in 2008. France could maintain its momentum in 2008 with respect to 2007 (around 1.8%), but also with a recovering profile during the second half of next year, while Italy will probably grow more moderately (1.4% in 2008), given that its growth potential is lower and its structural deficiencies are larger.

Risks are clearly on the downside, and derive from an eventual intensification of the aforementioned shocks: the liquidity crisis could become a credit crisis, the dollar could depreciate further and oil prices could remain at present levels (or even higher). Growth in the US could be worse than projected and complicate matters in Europe.

The expected moderation of oil prices could fail to materialize if geopolitical uncertainties persist. A more pessimistic scenario (incorporating a military intervention in Iran) could drive prices to beyond 150 $ in case of war.

Our base scenario for the dollar that expects it to reverse part of its losses against the euro is founded on better growth prospects in the US than in Europe for 2008, and on the fact that markets have already fully discounted interest rate reductions in the US but not in Europe. But the dollar could remain at its current levels for a prolonged period, or even depreciate further in the case that the outlook in the US deteriorates more than expected, including the possibility of a recession.

In principle, such an external demand shock should have a lower impact on European exports than in the past, since the trade channel across the Atlantic is now relatively less powerful due to the increase in the share of exports to emerging countries. For instance, from the growth in EMU exports in 2006, a large share corresponds to imports from emergent Asia and Russia, thanks to the very high growth rates of some of those countries, while the process of convergence of Central and Eastern Europe has also benefited Eurozone exports, especially those from Germany.

However, we think that if the US outlook worsens much, it would be difficult for Europe to decouple from the US, since a situation of weak growth or recession would be accompanied by problems on various fronts (mortgage credit, further dollar fall, additional problems in financial markets), which would be transmitted to Europe through additional channels to that of trade, like consumer and business confidence and financial market contagion. We estimate that the probability of a recession in the US economy is not negligible. In that case, problems in the US could start hitting also emerging countries, affecting Europe through an additional trade channel

2.4 Inflation is picking up and will rise further at the end of the year as the new hikes in crude oil prices are passed into consumer inflation and base effects set in.

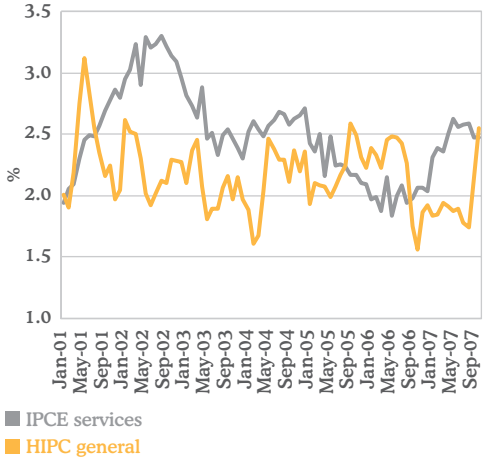
Recently HICP inflation in the euro area rose from 2.1% to 2.6%, more than expected. The surprise derived from the acceleration of both processed and unprocessed food inflation, reflecting a combination of higher international food prices and of less than perfect competition in the distribution and processing of food goods.

Apart from these one-off increases, underlying forces should not exert much pressure on the inflation rate. The rise of the euro will compensate part of these increases through lower import prices. Second round effects are unlikely to settle in as inflation expectations are well anchored.

Despite the bad data points from the last two months, which present a short-term policy dilemma to the ECB as the growth outlook points to one direction and higher inflation points to the opposite one, we do not think that inflation concerns should be dominant.

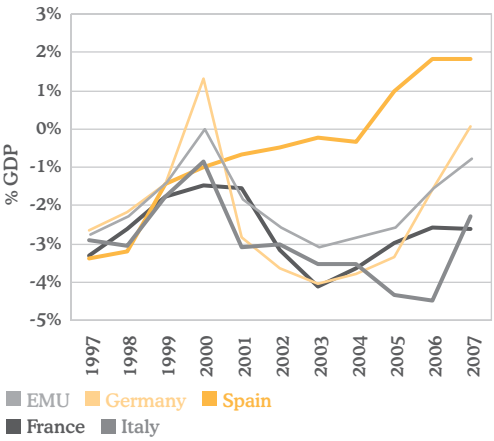
First, the inflation surprise in October was concentrated on the most volatile components of the ICP index –food prices-, and should be considered as a temporary phenomenon, which partly reflects transitory factors such as bad crops. Second, the euro appreciation exerts a moderating influence on import prices, which should show up fairly rapidly in inflation figures in coming months. Third, pressures from internal demand are expected to

Chart 2.14.
Inflation rate for services



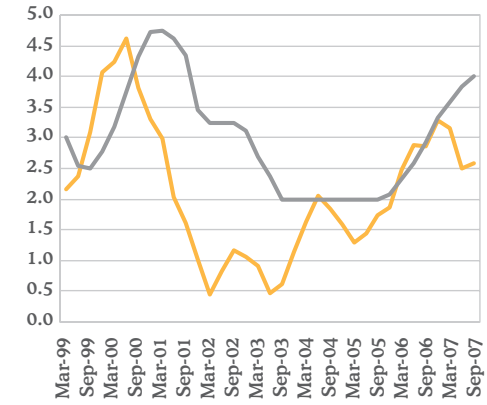
Source: Eurostat

Chart 2.15.
General government balance



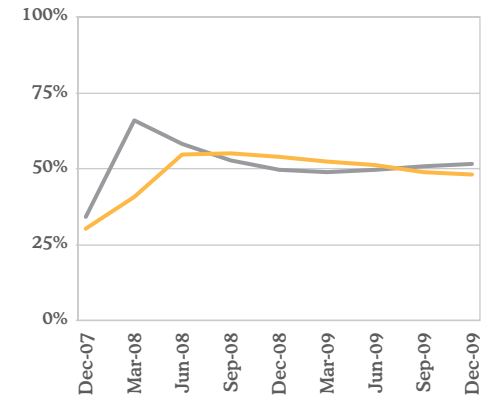
Source: European Commission

Chart 2.16.
Policy interest rates and economic cycle



Source: ECB and Eurostat

Chart 2.17.
Inflation risk
Prob. Inflation > 2%



Source: BBVA

weaken somewhat as growth prospects moderate. Indeed, service prices, which are a good indicator of such pressures as they correspond to inflation components which are mostly isolated from external demand, have been moderate recently, contrary to what happened in past episodes of inflation pressures.

The probability of second round effects from current inflation surprises, rightly pointed out by the ECB as a risk to monitor closely, is relatively low. Eurozone indicators of wage inflation are published with considerable delay, but they have been restrained in past years even under high demand pressures, and in the near future lower demand pressures should also help to contain wages. In addition, inflation expectations, although remaining at high levels, have been affected by energy price rises in recent months, and have paused in October.

Our projection is for HICP inflation to edge up to almost 3% by the end of this year and then quickly fall to below 2% by the end of 2008, as base effects from temporary hikes unwind.

All in all, the bad surprise from last months has prompted us to shift up our projection path for the coming future, although the profile remains unchanged: a further acceleration by the end of this year (to close to 3%), and a rapid deceleration during the course of 2008 as base effects from past increases in the energy component disappear, the recent euro rise is translated into lower import prices and internal demand moderates.

2.5 What is the margin for maneuver of demand policies in case downside risks materialize?

Under current circumstances, where the outlook is not particularly bad but risks are not negligible and clearly downwards, it is important to check the margin for maneuver from macroeconomic policies -fiscal and monetary- in front of an eventual realization of those risks.

Regarding fiscal policy, there is some room for action, but it is not huge – and now it is evident that deficit reduction policies of past years should have been more ambitious. The public deficit for the Eurozone has dropped from 3.1% of GDP in 2003 to 0.8% this year, as projected by the European Commission. This 2.3 percent points improvement has been mostly structural (2 points). Among the largest countries in the area, France and Italy maintain a relatively high deficit, although in the Italian case the outlook has improved in 2007 (not in France). In Germany, the deficit has almost disappeared this year, whereas in Spain the relatively high surplus gives a large room for maneuver.

In theory, considering the limits imposed by the Maastricht Treaty (-3% of GDP), the room to face negative risks to growth is 2 points of GDP for the average of the Eurozone. In 2000, at the end of the 1990s expansion and just before several shocks hit the World economy (dotcom bubble implosion, 11-S), public deficits in the euro area were 0% on average. The margin today is not excessive, but should suffice if the growth deceleration were more intense than projected. A much more negative scenario (recession) would trigger automatic stabilizers that would require to break the Maastricht limit of 3%, although in that case a more flexible application of those rules, now permitted by European agreements, should not be discarded.

The margin for monetary policy would also be somewhat lower than in the past, as interest rates in the current cycle have not reached the levels of the previous one (4.75%), although they are far from zero. In any case, the margin for monetary policy is conditioned also by inflation prospects in Europe, which have deteriorated. Under the current circumstances, where inflation is expected to surpass the implicit ECB target in 2008, the room for aggressive interest rate cuts would be limited. However, previous episodes suggest that the ECB could substantially lower rates in the face of increasing growth risks and a significant deterioration of activity.

2.6 Monetary policy: It is time to consider interest rates cuts

The outbreak of financial turmoil in early August blew the path of rising interest rates by the ECB, removing the 25 basis points rise that had been pre-announced in August (just before the start of turbulence) and even a further one in December, according to our estimates at that time.

Under our point of view, the likelihood of further increases in interest rates under the current financial crisis has been reduced to close to zero, even though the ECB has maintained an upward bias in inflation and, therefore, interest rates.

The ECB, like the Bank of England (BoE), has defended since the beginning of the crisis a separation between monetary policy as such and the policy of injecting liquidity into the market. In contrast, the US Federal Reserve, faced with a scenario of economic slowdown and a non-negligible risk of recession, has supplemented the liquidity injections with an aggressive cut-rate (50 bp two months ago and an expected 25 bp for its next meeting). More recently, the BoE, incorporating a more negative growth scenario for 2008, has also anticipated a possible cut of 50 bp in interest rates over the next year.

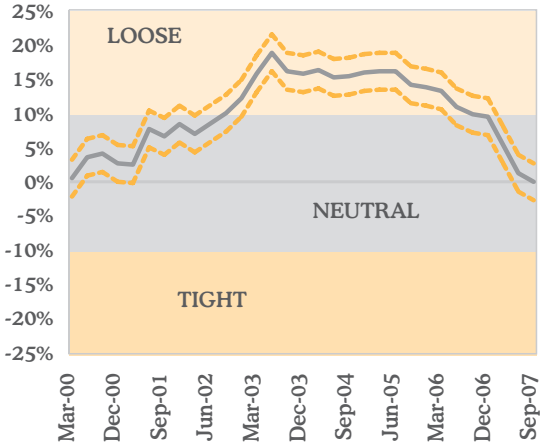
We believe that the appropriate weight of risks of lower growth makes that the more likely movement in the short term (next few months) is a cut in interest rates. This is compatible with our medium term forecast presented above, and with our indicator of the monetary policy stance, which has now moved to a "neutral" stance.

The main argument to defend a downwards movement is the assignment of more weight to growth risks (tensioning of financial conditions, appreciation of the euro, slowing global economy) than to inflation risks (second round effects on wages). While it is true that so far Europe has coped relatively well with the appreciation of the Euro, the global environment will not be as favourable as in the previous years, and therefore export dynamism will be affected.

With regard to the potential impact of an increase in the terms of credit, it is indeed difficult to quantify. A first approximation with our models allows us to advance that the impact can be negligible if shocks are not persistent, but it could be very significant, especially on investment, if the shock ends affecting the credit supply. And if the situation continues to be abnormal in money markets and despite the continuous injection of liquidity by the ECB, the likelihood that the supply of credit is affected is high.

Given all this, official interest rates to 3.75% in 2008 are compatible with a scenario of slower growth and inflation eventually receding to the ECB target.

Chart 2.18.
Indicator of ECB's Monetary Policy Stance (% deviation from mean)
Output Weight = 1.0 ; Inflation Weight = 1.0



Source: BBVA

Table 2.1. Euro area: GDP growth and inflation forecasts

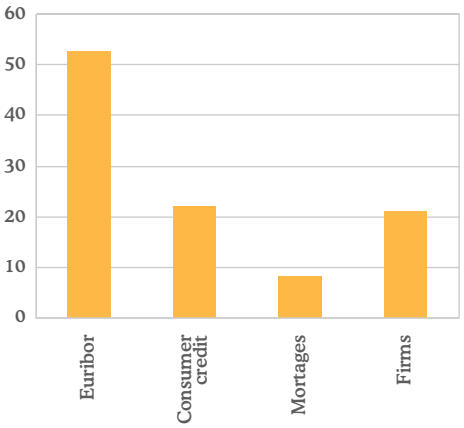
% QoQ rates	1Q07	2Q07	3Q07	4Q07	1Q08	2Q08	3Q08	4Q08	2006	2007	2008
Private consumption	0.0	0.6	0.5	0.5	0.4	0.4	0.4	0.5	1.9	1.5	1.8
Public consumption	0.9	0.2	0.6	0.4	0.5	0.5	0.6	0.7	1.9	2.0	2.0
Gross Fixed Capital Formation	1.8	0.0	0.9	0.3	0.7	0.6	0.5	0.5	5.2	4.6	2.1
Inventories (*)	0.4	-0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Domestic demand (*)	1.0	0.0	0.8	0.4	0.5	0.4	0.5	0.5	2.7	2.2	1.8
Exports	0.8	0.8	2.5	0.7	0.5	0.7	0.6	0.8	7.9	6.0	3.2
Imports	1.3	0.1	2.7	0.8	0.6	0.7	0.6	0.8	7.6	5.4	3.5
External demand (*)	-0.2	0.3	-0.1	-0.1	-0.1	0.0	0.0	0.0	0.2	0.4	-0.1
GDP	0.8	0.3	0.7	0.4	0.4	0.4	0.5	0.5	2.9	2.6	1.8
Inflation (**)	1.9	1.9	1.9	2.8	2.6	2.2	2.1	1.4	2.2	2.1	2.1

(*) Contribution to quarterly growth
(**) year on year
Source: Eurostat and BBVA

Chart 3.1.

Bank lending spreads over the ECB's refi rate

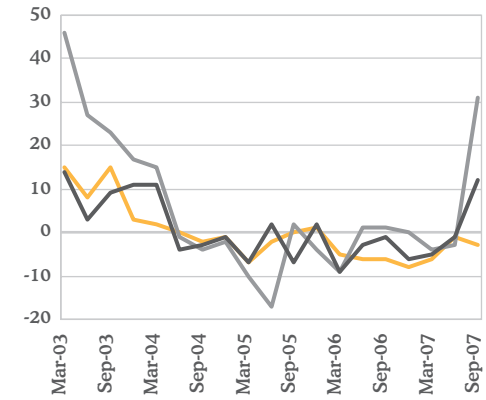
(basis points increase from Jul.07 to Sept.07)



Source: ECB and BBVA

Chart 3.2.

Tightening of Banks' Credit Conditions



Source: ECB Bank Lending Survey and BBVA

3. Assessing the Impact of Tighter Financial Conditions on the Euro Area Economy

Over the last few months, a series of events led to an intensification of the tensions in the US sub-prime mortgage market and a sharp decline in the degree of risk appetite of global investors. Market volatility increased across almost all financial asset classes. Stock prices declined as investors sold equities and moved funds into safe-haven investment assets

Financial turbulences eventually spilled over to the very short-term money markets. Banks, particularly the European ones, encountered difficulties in raising short-term liquidity. This situation caused a pronounced squeeze across major financial markets, prompting central banks around the globe to inject large amounts of liquidity.

Notwithstanding these interventions, money markets have remained relatively tight. Lending volumes have been abnormally low, and conditions have only improved at the very short-end. Issuances in mortgage markets have almost reached a complete halt.

Short-term interest rates have increased, most notably the ECB's refinance rate. As shown in Chart 3.1, since the beginning of the turmoil, the 3-month Euribor interest rate has raised more than 50 basis points (bp). Interest rates charged by banks to households and firms have also increased, but more moderately: around 20 bp for short-term consumer and firms finance, and less than 10 bp for mortgage loans.

Other sources of finance have also suffered the consequences of the unfavourable credit events. Non-financial firms, for instance, have seen a rebound of corporate spreads of about 20 bp since the beginning of the crisis. However, the financial turmoil seems not to have had a significantly negative effect on share prices in general.

Amongst major European banks this has not been the case, possibly reflecting the potential negative impact on expected profits of the disruptions in financial markets. This could also be regarded as a leading indicator of a lower willingness of banks to increase the asset component of their balance-sheets. Credit conditions could, thus, be expected to deteriorate further in the near future.

European banks generally reported that the recent tensions in the credit markets have affected their lending behaviour and, most notably, their access to wholesale funding. Taken into account the high cyclical correlation between the credit cycle and the economic cycle, a tightening of credits standards and a eventual decrease in credit supply could have significant effects on the Euro Area economy.

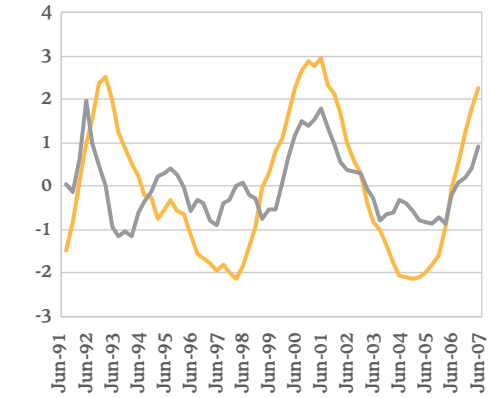
Additionally, on the October 2007 ECB's Bank Lending Survey, banks generally reported that the recent tensions in the credit markets have affected their lending behaviour and, most notably, their access to wholesale funding. As shown in Chart 3.2, credit standards for loans to enterprises tightened in net terms in the third quarter of 2007. The net tightening applied more significantly to large enterprises. As regards loan maturities, the net tightening was somewhat more pronounced for long-term loans. Looking ahead to the fourth quarter of 2007, banks expect a further net tightening of credit standards applied on loans to

enterprises.[1] Despite these negative prospects, banks remain confident on their strong solvency positions.

The events in financial and credit markets are likely to have relevant implications for the performance of the real side of the economy. As shown in Chart 3.3, historically the business cycle and the credit cycle have move together very closely. It is, thus, of paramount relevance to perform a correct assessment of the possible impacts of a deterioration of credit conditions, or even an eventual credit crunch, on the Euro Area Economy.

In order to achieve this objective, we first review the main channels of interaction between credit and the real economy. We, then, present some quantitative results obtained from empirical models estimated on Euro Area data. In a related Box, we study qualitatively how issues such as the persistence of credit shocks might influence the impacts on the economy, as well as the difficult role of central banks in dealing with these situations.

Chart 3.3.
Credit Cycle vs. Business Cycle
(% deviation from trend)



Source: BBVA

Changing credit conditions can affect activity through different channels. Financial intermediaries can affect the availability of credit in the economy either through an increase in its price or simply rationing the quantity of credit. The prices that financial intermediaries charge on their loans will depend in part on borrowers' own financial positions and the value of borrowers' collateral could amplify the change in credit conditions 'financial accelerator').

We review the main transmission channels that have been suggested in the theoretical literature, as well as the main empirical approaches put forward. In the first case, there is a long tradition in economic theory that investigates the interaction between real and financial variables and, as a result, between credit developments and aggregate economic activity. Developments in credit markets can affect financial intermediaries' ability and willingness to lend, as well as private agents' ability to raise funds in these markets. As a result, consumption and investment decisions of households and businesses will be affected.

Financial intermediaries can affect the availability of credit in the economy either through an increase in its price or simply rationing the quantity of credit they are willing to extend at any given price. Such situations reflect difficulties in raising funds. Intermediaries can raise funds in the capital markets in two main ways. First, they can borrow from other intermediaries, for instance, in the interbank market. Another source of funding is through packaging assets as securities that are subsequently purchased by other investors. In the event of higher funding costs, driven for example by weaker demand for asset-backed securities or a general reassessment of risk, financial intermediaries are thus likely to increase the rates charged on their loans or reduce the quantity of credit offered.

The prices that financial intermediaries charge on their loans will depend in part on borrowers' own financial positions. For instance, loans to borrowers with weaker balance sheets which tend to be more risky will require a higher premium. Hence, those situations that change the value of borrowers' net worth are likely to exacerbate the impact of changing credit conditions. This mechanism is known as the 'financial accelerator'.[2]

[1] A discussion of the ECB's Bank Lending Survey can be found in a BBVA Research Department Flash Note published on October 5th.
[2] Theoretical foundations of the financial accelerator channel can be found in Bernanke and Gertler (1989) 'Agency costs, net worth and business fluctuations'. American Economic Review, Vol. 79, pp. 14-31.

A distinct feature of the 'financial accelerator' mechanism is its focus on imperfections in financial markets related to problems of asymmetric information. In this case, the economic agent's access to external finance sources is only possible under the pre-condition of having collateral that can serve as a repayment guarantee. The reason why credit plays a role in amplifying shocks in these situations is because the availability of collateral varies with economic activity. In periods of economic slowdown, the amount of available collateral in the economy tends to decline, limiting the access of households and firms to credit and eventually originating binding credit constraints. In turn, the emergence of credit constraints forces economic agents to curb expenditure and ultimately amplifying the economic slowdown. By contrast, positive shocks to the economy tend also to raise the value of collateral and remove credit restrictions. This allows a greater amount of expenditure to be financed, thereby reinforcing the expansionary effect on the economy of the original shock.

Most of modern macroeconomic models now commonly used do not incorporate explicitly credit features. Empirical studies have found clear evidence of asymmetric responses to shocks to real credit growth over the lending cycle, with shocks having larger effects when the economy is in the low lending growth regime. In quantitative assessments, the strength of the financial accelerator usually turns out to be significant.

Recent empirical studies have tested the implications of the financial accelerator hypothesis on aggregate Euro Area data.[3] These studies have found clear evidence of asymmetric responses to shocks to real credit growth over the lending cycle, with shocks having larger effects, particularly on inflation, when the economy is in the low lending growth regime.

Most of the empirical analyses on the interaction of credit and the macro economy are typically based on reduced form models. The common approach is to build vector auto-regression models, usually incorporating equilibrium (co-integration) relationships. This literature is now certainly ample and, to some extent, well established.[4] However, most existing empirical studies mainly focus on the role of credit in the transmission of monetary policy. There are fewer studies that explicitly take a look at the macroeconomic role of autonomous shifts in credit conditions.

In addition, it is noticeable that most of modern macroeconomic models now commonly used by policymakers and researchers do not incorporate explicitly credit features. Probably, the reason lies on the difficulties in escaping from the representative-agent paradigm in a dynamic stochastic general equilibrium (DSGE) framework. There are, however, some DSGE models that incorporate the 'financial accelerator' mechanism described above.[5] These models have recently been taken to the data. In general, the incorporation of the financial accelerator further improves the prototypical DSGE model's ability to mimic the dynamics of the main macroeconomic aggregates. Furthermore, in quantitative assessments, the strength of the financial accelerator usually turns out to be significant. Interestingly is the fact that this strength is different in the Euro Area and the U.S.[6]

[3] Calza and Sousa (2005) "Output and Inflation Responses to Credit Shocks", Working Paper 481, European Central Bank present a vector autoregressive model with switching regimes.
[4] See Manrique et. al (2006): "Credit in the euro area: An empirical investigation using aggregate data" The Quarterly Review of Finance, vol. 66, pp. 211-26.
[5] A key reference in this regard is Bernanke, Gertler and Gilchrist (1999) "The Financial Acceleration in a Quantitative Business Cycle Framework" published in the Handbook of Macroeconomics.
[6] This is illustrated in Christiano et al. (2007) "Shocks, Structures or Monetary Policies? The Euro Area and the US after 2001" Working Paper No. 774, European Central Bank.

Even though the 'financial accelerator' mechanism has mainly been used to study the relationship between credit and the real economy at cyclical frequencies, it has also been applied to the analysis of pathological conditions such as credit crunches.

The 'financial accelerator' mechanism has generally been related to the so called credit-channel that focuses on households and firms' net worth. However, using a similar argument, it is possible to define a bank-lending channel that focuses on banks' net worth as the key element. The argument put forward is that the ability of a bank to raise funds is likely to depend on its solvency position. Banks with weaker balance sheets are expected to face more difficulties in rising funds than those with stronger positions. The bank-lending channel is particularly relevant for the Euro Area economy, given its reliance on a bank-based financial structure.[7]

As discussed above, following the recent developments in financial markets, some banks have experienced an unanticipated expansion of their assets, as loans that they would normally have sold on have remained on their balance sheets, and as committed credit lines to their off balance sheet investment vehicles have been activated. Other things being equal, this will cause their capital ratios to fall. As a result, movements in capital ratios relative to their desired levels can affect banks' ability and willingness to lend.

There are a number of other channels through which the recent episode of financial market turbulence might influence spending decisions. First, if developments in financial markets affect household wealth via changes in asset prices, they could have a direct impact on spending growth. Second, changes in perceptions of risk may lead households to reduce consumption and increase savings as a precaution against any future deterioration in income, wealth or their ability to obtain credit.

Similarly, companies may postpone investment projects in the face of greater uncertainty about the cost of finance and about future demand conditions. This reduction in investment e reduction might have an impact on long term growth. Bank credit plays, for instance, an important role in Schumpeter's famous theory whereby fluctuations in investment and economic activity are determined by credit financed innovation waves.

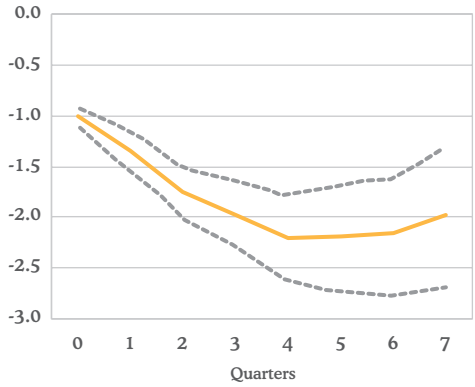
Additionally, movements in financial markets can exert an influence on economic activity and inflation via their impact on exchange rates. And given the global nature of the turbulence, the outlook for global prices and demand for Euro Area exports will also be affected.

In order to assess the Impact of Credit Shocks in the Euro Area a empirical model has been estimated. The estimated response of credit to an identified credit shock is very persistence and the deviation with respect to the initial level is close to 2%. The nominal interest rate falls to counteract these negative effects on GDP and prices.

In what follows, we provide an assessment of the implications of developments in credit markets on the economic activity in the Euro Area. To that end, an empirical (VAR) model has been estimated. The baseline specification includes the following set of variables: Gross Domestic Product (GDP), Consumer Price Inflation, the nominal lending interest rate and total loans, in real terms, to the private sector. The analysis is based on quarterly data covering the period 1992:Q1-2007:Q2, and has been obtained from official sources.

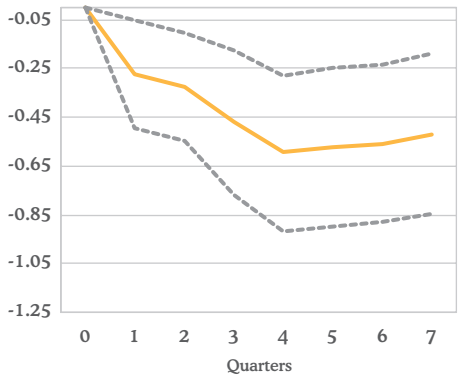
[7] Altunbas et al. (2002) "Evidence on the bank lending channel in Europe" Journal of Banking and Finance Vol. 26, pp. 2093-2110 show that the response to a monetary policy shock in the Euro Area depends on banks' asset size and their capital strength.

Chart 3.4.
Response of Credit to a Credit Shock
(% deviation from baseline)



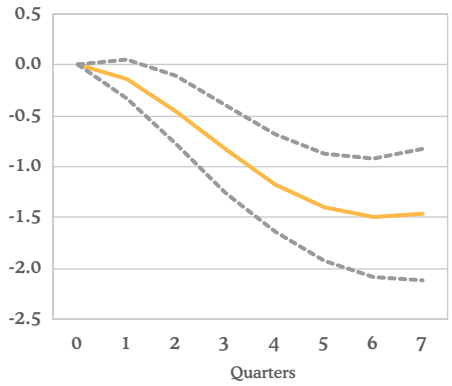
Source: BBVA

Chart 3.5.
Figure 5: Response of GDP to a Credit Shock
(% deviation from baseline)



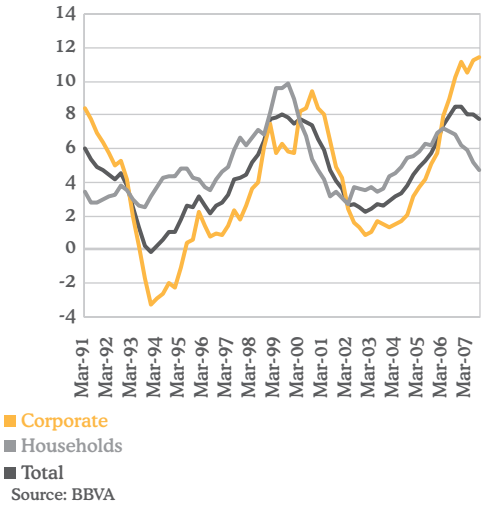
Source: BBVA

Chart 3.6.
Response Interest Rate to a Credit Shock
(Annualised % deviation from baseline)



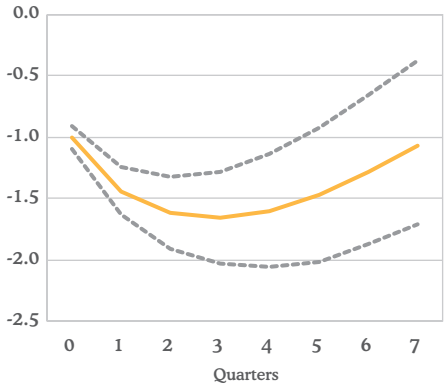
Source: BBVA

Chart 3.7.
Loans to the Private Sector
(CPI Deflated, % YoY)



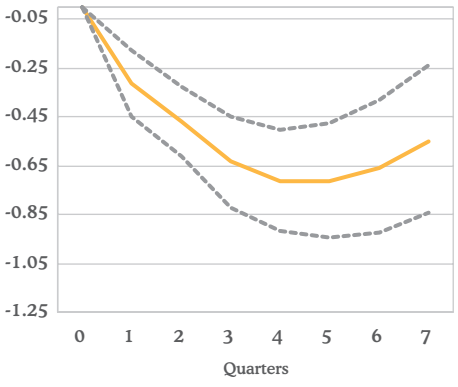
Source: BBVA

Chart 3.8.
Response Household Credit to Credit Shock
(% deviation from baseline)



Source: BBVA

Chart 3.9.
Response Consumption to Household Credit Shock
(% deviation from baseline)



Source: BBVA

One important issue for this exercise regards the identification of a credit shock. To that end, it is assumed that shocks to real GDP affect the other variables in the system contemporaneously, but real output reacts sluggishly to shocks to the other variables. Moreover, inflation reacts contemporaneously to shocks to real GDP, but only with a lag to those to credit and interest rates. Lending interest rates react contemporaneously to movements in all variables, with the exception of credit; but shocks to interest rates affect the real economy indicators only after one quarter. Finally, credit responds contemporaneously to unanticipated changes in all the other variables of the system, but shocks to credit have a delayed impact on the other variables.[8]

The positioning of the real sector variables before those related to the credit market is standard in the empirical literature.[9] It reflects the more general assumption that financial markets adjust simultaneously to macroeconomic shocks, but that the real sector reacts only sluggishly to shocks to financial variables.

Chart 3.4 shows the response of credit, defined as total loans to the private sector, to an identified credit shock. The magnitude of the shock has been normalised so that on impact, total credit to the private sector falls by 1%. The estimated response is very persistence indeed.[10] The deviation with respect to the initial level is close to 2%. This dynamic path implies a response of GDP as shown in Chart 3.5. By construction, GDP does not response on impact to the credit shock. The following quarters, GDP falls gradually. One year after the shock, the cumulated quarter on quarter growth rate of GDP is about -0.5%. The slowdown in economic activity makes inflation to fall. The nominal interest rate, shown in Chart 3.6, falls almost 75 bp (annualised) to counteract these negative effects on GDP and prices.

Specific models have been estimated for households and firms. Private consumption falls about 0.65% in a four quarter span. For firms, the estimated response turns out to be more persistent than in the case of a household credit shock. The short term response is certainly sharp, with investment falling, in real terms, about 0.65% in the quarter after the shock and by 0.75% three quarters after the shock.

The analysis performed so far has focused on measuring credit as total loans to the private sector. This, however, may potentially generate an 'aggregation bias' in case of significant heterogeneity in lending demand behaviour across firms and households. Moreover, these two economic agents give rise to aggregates that correspond to different spending components and may be differently affected by asymmetric informational problems and financial constraints.[11] Chart 3.7 shows, for instance, that corporate credit seems to be more sensitive to changes in the economic environment that household credit.

In order to overcome improve the analysis, specific models have been estimated. Firstly, a model including consumption expenditure, consumer price inflation, nominal interest rates and credit to households was estimated. Credit shocks have been identified using the same scheme as before, that is, real variables respond with a lag to movements on

[8] In order to check the sensitivity of the results to the relative positioning of quantities and prices of loans, the following alternative scheme has been also considered. Also, an identification based on imposing sign restrictions has been conducted. The results are robust to these alternatives.
[9] See for instance, Lown and Morgan (2002) "Credit effects in the monetary mechanism". FRBNY Economic Policy Review, Vol. 8, No. 1, pp. 217-241.
[10] The figures show the percentage deviation of the level of the variables with respect to a pre-shock level. Given that the shock are transitory, one can assume that the trends are not affects and thus, the figures shown can be considered as the cumulative quarter on quarter growth rate of the variable shown.
[11] In a recent paper, Kaufmann and Valderrama (2007) 'Modelling Credit Aggregates', Central Bank of Austria Working Paper No. 90. have estimated, for several European countries, nonlinear VARs models for household and corporate credit.

financial variables. The responses to a typical household credit shock (normalised in magnitude to an impact of -1%) are shown in Charts 3.8 and 3.9. The estimated shock is highly persistent. Three quarters after the shock, consumption falls about 0.65%

Next, we proceeded to investigate the interaction between investment and loans to non-financial corporations. The identification of shocks was carried out as before, that is, financial variables respond before real side variables. Chart 3.10 shows the dynamic path of corporate credit to a -1% impact shock. The estimated response turns out to be more persistent than in the case of a household credit shock. Chart 3.11 shows next the implications for investment. The short term response is certainly sharp, with investment falling, in real terms, about 0.65% in the quarter after the shock. In the following quarters, the response of investment is more stable. Three quarters after the shock, corporate credit has decreased about 1.2%, while investment felt by 0.75%.

The results presented above have tried to assess both qualitative as well as quantitatively the main channels for the transmission of credit shocks in the Euro Area. To that end, several modelling approaches have been applied. The results show that such shocks might have quantitatively significant impacts on the Euro Area Economy.

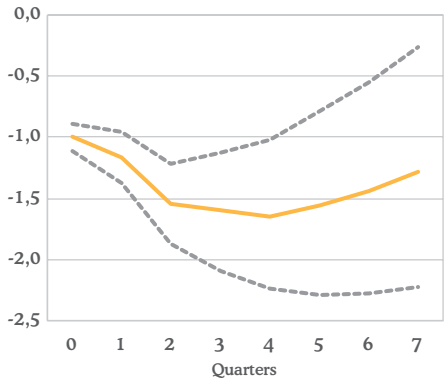
One caveat of the analysis refers to aggregation issues related to differences across countries within the Euro Area. Despite some evidence of real, nominal and financial convergence in the Euro Area, the amount of heterogeneity still present is significant.[12] Regarding financial differences, countries typically differ in terms market structure, clients' relationships or eve regulatory arrangements.

Modelling credit aggregates in countries with different financial systems allows investigating whether the role of credit aggregates in the transmission mechanism depends on the institutional framework. For instance, credit tightening during an economic downturn may be less severe in those countries in which banks' have strong lending relationships with their clients. In these countries, the functioning of the so called 'house bank' principle, allows borrowers to smooth liquidity shocks over the cycle.

The 'house bank' principle allows both lenders and borrowers to overcome some of the asymmetric information problems found in imperfect capital markets by building long standing relationships. These lending relationships allow the borrower to be less dependent on internal funds, since the lender will provide its client with liquid funds even during an economic downturn. As a result, the borrower is able to smooth spending decisions over the cycle, since lending in this case is mostly demand driven. Germany is a clear example of a country that has a banking system characterized by narrow lending relationships.

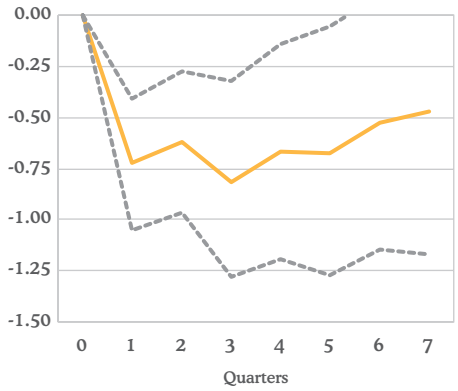
[12] This point is illustrated in Goddard et al. (2007) 'European banking: An overview' Journal of Banking and Finance, Vol. 31, pp. 1911-1935.

Chart 3.10.
Response of Corporate Credit to a Shock
(% deviation from baseline)



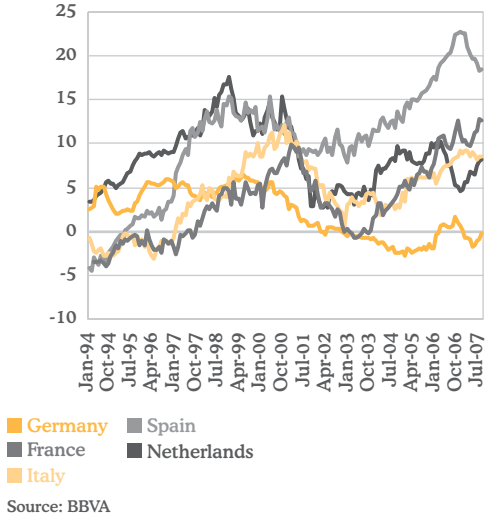
Source: BBVA

Chart 3.11.
Response of Investment to a Corporate Credit Shock
(% deviation from baseline)



Source: BBVA

Chart 3.12.
Total Private Sector Loans
(CPI Deflated, %YoY)



Source: BBVA

Box 2: Some lessons from a DSGE model incorporating financial market frictions

Our workhorse DSGE model of the Euro Area has been extended to incorporate financial frictions.[1] The model is used to illustrate two important points: first, the dynamic impact of a credit shock on the economy is likely to depend on the persistence of the shock itself; second, the shape of the economy's response to the shock will depend on the specific reaction of the monetary authority. The latter is certainly a delicate issue. Given the high degree of uncertainty surrounding the magnitude and persistence of credit shocks, the central bank will face a difficult task. Policy errors in this context might turn out to be very costly.

In order to illustrate these points, we simulate the response of key macro variables of the Euro Area to a credit shock under two alternative scenarios. These scenarios differ in the persistence of the shocks, which are defined as increases in the external cost of funding, rather than as a reduction in the volume of credit.[2]

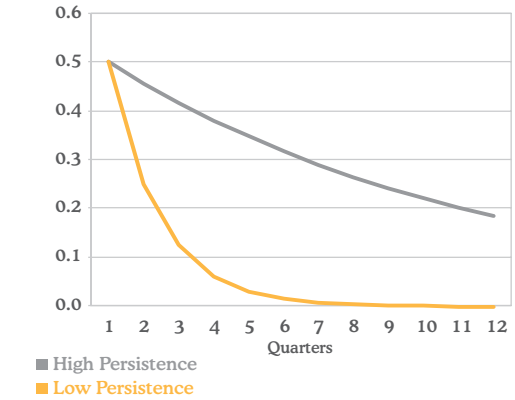
Chart 1 shows the dynamic path of the two credit shocks considered. Both shocks give rise to an impact increase of the external finance premium of 50 basis points (in annualised terms). The persistence is, however, remarkably different. The low persistence case corresponds to a shock that becomes almost negligible one year after its initial impact. The high persistence case involves a credit shock that lasts significantly more time.

The response of GDP is given in Chart 2. It is very noticeably the difference of the responses, both in terms of impact and persistence. For instance, in the low persistence case, GDP falls less than 0.1 percentage points on impact, whereas the effect is more than twice as big, in absolute terms, in the high persistence case. The intuition for this result is as follows: agents in the economy are assumed to know how persistent the credit shock is likely to be. Hence, given their forward-looking nature, they will react moderately in the low persistence case and more strongly in the case of a high persistent shock.

Additionally, financial market frictions, which are included in the model through a financial accelerator mechanism, help amplify the effects of the original shock. The financial accelerator relies on the idea of a negative relationship between the external financial premium (the difference between the cost of funds raised externally and the opportunity cost of funds) and the net worth of potential borrowers.

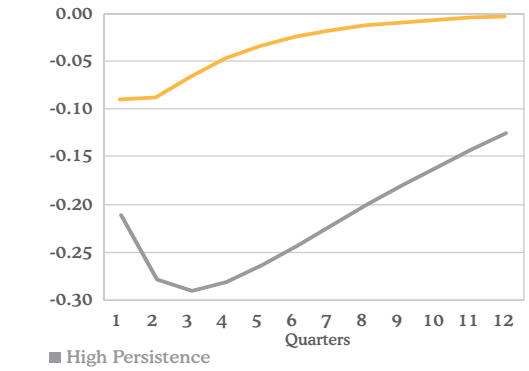
Accordingly, firms with higher leverage (lower net worth to capital ratio) will have a greater probability of defaulting and will therefore have to pay a higher premium. Since net worth is pro-cyclical (because of the pro-cyclicality of profits and

Chart 1
Shock to the External Finance Premium
(Annualised % deviation from baseline)



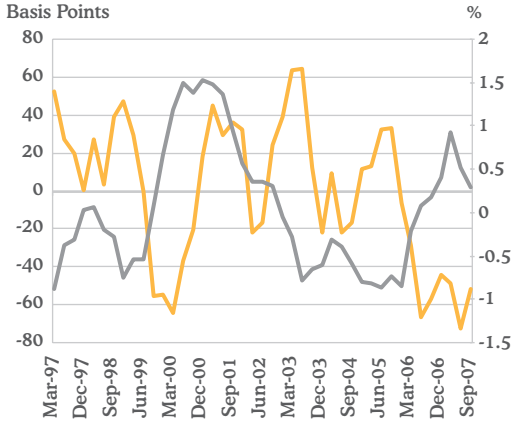
Source: BBVA

Chart 2
Response GDP to Credit Shock
(% deviation from baseline)



Source: BBVA

Chart 3
External Finance Premiun and the Business Cycle



Note: External finance premium computed as the difference between interest rates of loans to non-financial corporations and the 5 year Government bonds. Figures expressed in deviation from historical mean. Business cycle refers to deviations of GDP from HP trend.
Source: BBVA

[1] The workhorse model is similar to the one in Smets and Wouters (2005): "Comparing Shocks and Frictions in US and Euro Area Business Cycle: A Bayesian DSGE Approach." Journal of Applied Econometrics, Vol. 20, pp. 161–83. Details regarding model equations and parameter values are available upon request.
[2] One reason is the difficulty of incorporating heterogeneity in representative agent models.

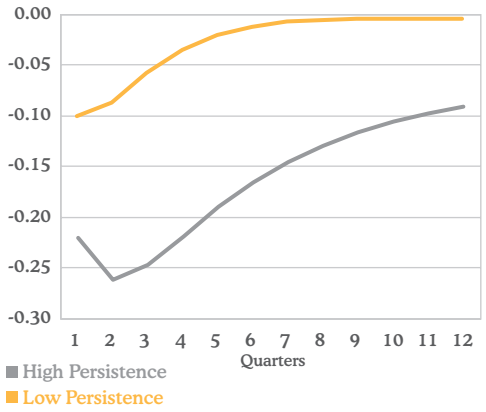
asset prices), the external finance premium becomes counter-cyclical and amplifies business cycles through an accelerator effect on investment, production and spending. This is illustrated in Chart 3, where a measure of the Euro Area business cycle is compared to a measure of the external finance premium.

Charts 4 and 5 show the responses of consumption and investment. Again, the different responses depending on the persistence of the shock are evident.

As discussed above, a key element of the previous results is that agents in the economy are able to infer how persistent the credit shock is going to be. One of these agents is the central bank. Chart 6 shows the response of the nominal (risk free) interest rate to the credit shock. As can be seen, the monetary authority reduces the interest rate in order to counteract the positive increase in the credit spread. The main reason is that inflation, shown in Chart 7, falls sharply in the case of the high persistence credit shock, whereas the impact in the other case is minimal.

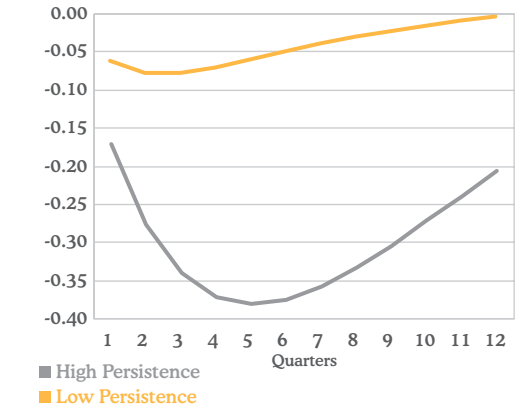
The point we would like to highlight is that if there is not perfect information, that is, the central bank is not able to distinguish the dynamic nature of the credit shock; the consequences of an eventual policy error might thus be very significant. For instance, if the central bank believes the shock is going to be very persistent, it will implement a very tight policy, creating an unnecessary slowdown or even a recession. Hence, policy makers should be very cautious in responding to a financial turmoil.

Chart 4
Response Consumption to Credit Shock
(% deviation from baseline)



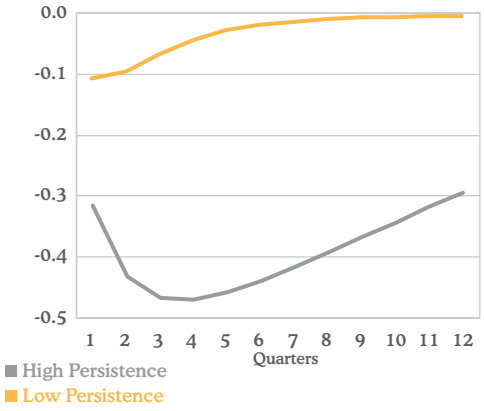
Source: BBVA

Chart 5
Response Investment to Credit Shock
(% deviation from baseline)



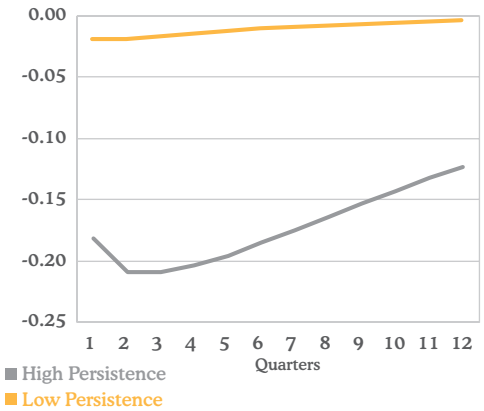
Source: BBVA

Chart 6
Response Nominal Interest Rate to Credit Shock
(Annualised % deviation from baseline)



Source: BBVA

Chart 7
Response Inflation to Credit Shock
(Annualised % deviation from baseline)



Source: BBVA

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4. Summary of Forecasts

Germany: GDP growth and inflation forecasts

YoY rate	2004	2005	2006	2007	2008
Private consumption	-0.2	0.1	1.1	-0.2	1.6
Public expendiature	-1.5	0.5	0.9	2.0	0.7
Gross Fixed capital formation	-1.1	1.3	7.0	5.1	1.7
Inventaries (*)	0.8	-0.4	-0.2	0.0	0.0
Domestic Demand (*)	-0.8	0.5	2.0	1.3	1.3
Export	9.2	7.4	12.9	8.2	3.9
Import	6.5	6.9	11.5	6.1	3.5
Net export (*)	1.2	0.5	1.1	1.3	0.5
GDP	0.6	1.0	3.1	2.6	1.8
Inflation	**1.7**	**2.0**	**1.7**	**2.1**	**1.9**

(*) Contribution to growth
Source: BBVA

France: GDP growth and inflation forecasts

YoY rate	2004	2005	2006	2007	2008
Private consumption	2.4	2.2	2.2	1.9	1.8
Public expendiature	2.2	0.9	1.6	1.6	2.8
Gross Fixed capital formation	3.3	4.1	4.1	3.7	1.9
Inventaries (*)	0.4	0.1	0.0	0.0	0.0
Domestic Demand (*)	3.1	2.4	2.5	2.1	1.9
Export	3.3	3.2	6.3	3.5	3.4
Import	6.2	5.4	7.1	4.3	3.7
Net export (*)	-0.8	-0.7	-0.3	-0.3	-0.2
GDP	2.3	1.7	2.2	1.8	1.7
Inflation	**2.1**	**1.7**	**1.7**	**1.5**	**1.9**

(*) 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	2.1	1.7
Public expendiature	1.6	1.5	-0.3	0.4	1.2
Gross Fixed capital formation	1.3	-0.2	2.4	2.2	1.7
Inventaries (*)	-0.1	-0.1	0.4	0.0	0.0
Domestic Demand (*)	0.8	0.5	1.7	1.7	1.6
Export	2.7	0.0	5.5	2.2	1.8
Import	2.0	1.0	4.5	1.8	2.7
Net export (*)	0.2	-0.3	0.2	0.1	-0.2
GDP	1.0	0.2	1.9	1.8	1.4
Inflation	**2.2**	**2.0**	**2.1**	**1.9**	**2.1**

(*) 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	3.2	2.8
Public expenditure	6.3	5.5	4.8	5.4	5.1
Gross fixed capital formation	5.1	6.9	6.8	5.8	2.9
Equipment	5.1	9.2	10.4	10.8	4.5
Construction	5.4	6.1	6.0	4.2	1.9
Others products	3.8	6.4	4.6	3.3	2.8
Inventories (*)	0.0	-0.1	0.1	0.0	0.0
Domestic demand (*)	4.9	5.3	5.1	4.6	3.5
Export	4.2	2.6	5.1	4.4	4.0
Import	9.6	7.7	8.3	5.8	4.9
Net export (*)	-1.7	-1.7	-1.3	-0.8	-0.8
GDP	3.3	3.6	3.9	3.8	2.8
Inflation	**3.0**	**3.4**	**3.5**	**2.8**	**2.9**

(*) Contribution to growth
Source: BBVA

Summary of forecasts

Euro area (YoY)

	2003	2004	2005	2006	2007	2008
GDP at constant prices	**0.8**	**1.8**	**1.6**	**2.9**	**2.6**	**1.8**
Private consumption	1.2	1.5	1.5	1.9	1.5	1.8
Public consumption	1.8	1.3	1.4	2.0	1.9	2.0
Gross Fixed Capital Formation	1.2	1.9	2.8	5.4	4.6	2.2
Inventories (*)	0.2	0.1	0.1	0.1	0.0	0.0
Domestic Demand (*)	**1.4**	**1.6**	**1.8**	**2.6**	**2.2**	**1.8**
Exports (goods and services)	1.1	6.4	4.6	8.0	5.7	3.1
Imports (goods and services)	3.1	6.3	5.4	7.7	5.0	3.3
External Demand (*)	**-0.7**	**0.1**	**-0.2**	**0.2**	**0.4**	**0.0**
Prices						
CPI	2.1	2.1	2.2	2.2	2.1	2.1
CPI core	2.0	2.1	1.5	1.5	2.0	2.0
Labour Market						
Employment	0.4	0.9	1.0	1.6	1.5	0.9
Unemployment rate (% of labour force)	8.5	8.5	8.4	7.7	7.0	6.9
Public Sector						
Deficit (% GDP)	-3.1	-2.8	-2.5	-1.5	-0.8	-0.9
External Sector						
Current Account Balance (% GDP)	0.4	1.0	0.2	-0.1	0.0	0.0

* Contribution to growth

International environment (YoY)

	Real GDP growth (%)				Inflation (%)			
	2005	2006	2007	2008	2005	2006	2007	2008
US	3.2	2.9	2.1	2.2	3.4	3.2	2.8	2.2
UK	1.9	2.2	3.0	1.9	2.1	2.3	2.3	2.0
Japan	1.9	2.2	2.0	2.2	-0.3	0.1	0.0	0.5
Latam*	4.7	5.4	5.0	4.6	6.0	5.0	5.4	5.3

* 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 (%)			
	11/30/07	Dec-07	Jun-08	Dec-08	11/30/07	Dec-07	Jun-08	Dec-08
Euro zone*	4.00	4.00	3.75	3.75	4.10	4.20	4.20	4.20
US	4.50	4.25	4.25	4.25	3.92	4.30	4.40	4.50

	Exchange rate (vs euro)					Brent		
	11/30/07	Dec-07	Jun-08	Dec-08		11/30/07	Jun-08	Dec-08
US	1.47	1.45	1.43	1.40	$/b	89	81	74

* 10 year interest rate refers to German bonds

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