

## Are ECB rate hikes going to finish off the periphery?

- The question is not to assess whether or not ECB rate hikes will negatively impact Eurozone peripheral economies – they will – but by how much and which other relevant factors might help offset the drag on growth.
- Macro models suggest that the aggregate impact on Eurozone GDP of the three 25bp rate hikes we forecast in 2011 is manageable and spread over time: up to 0.2% of GDP over one year and 0.6% over three years.
- At the same time, we look for the EUR to weaken by around 5% in effective terms this year, which could boost Eurozone GDP by up to 1% over one year.
- The impact of rate hikes on Ireland, Portugal and Spain is likely to be larger than what macro models predict due to the high level of private debt, especially housing loans established under variable rates with short resetting periods.
- According to our rough estimates the projected ECB rate hikes could subtract around 0.2 percentage points off consumption in Spain in 2011 and 0.5 points in 2012. The impact likely remains manageable and not too far removed from our growth forecasts.

### Peripheral impact of rate hikes – forget about the textbooks?

An increase in short-term interest rates affects the real economy in many different ways, with the final impact on each country depending on structural specificities. In the following we provide some guidance about the potential impact of monetary tightening on economic activity. However, we would argue that in **the current environment, the usual monetary transmission channels will likely be impaired** by financial market tensions, constraints on bank lending as well as the ongoing process of deleveraging in the private sector. This

could mean, in particular, that **commercial banks will be somewhat reluctant to pass on policy rate hikes to retail bank rates**, as bank lending spreads are likely to narrow further in the future. Moreover, monetary policy will not become restrictive for a long time. It will only be gradually less accommodative.

Still, it can be argued that even a small rate hike is the exact opposite of what vulnerable peripheral countries need right now. In our view, **Spain and Portugal appear as the most vulnerable** due to their high level of private debt. However, we believe that **the final impact of rate hikes should remain manageable under our central assumption of a weaker EUR and tighter sovereign spreads.**

In particular, **one must bear in mind that monetary policy transmission is a long-lasting process.** It usually takes two to three years for the full impact of a rate hike to be felt in the real economy, as banks adjust the interest rates on their loans and private domestic demand reacts with a lag. In two years from now, we expect most peripheral countries, and Spain in particular, to be in a much stronger position than today.

We chose to focus on the private sector rather than on public debt dynamics, mostly because, in our view, ECB rate hikes are unlikely to have a major impact on long-term sovereign spreads, which remain highly volatile and mostly dependent on market sentiment and fiscal performance in the periphery. Our central case is for most sovereign risk premia to decline this year in response to both EU-wide crisis measures and national fiscal reforms.

In the first section we look at quantitative macro models to provide a plausible estimate of the potential drag on growth from ECB rate hikes in both the Eurozone as a whole and in peripheral countries. In the second section we use micro data to investigate further about the impact on

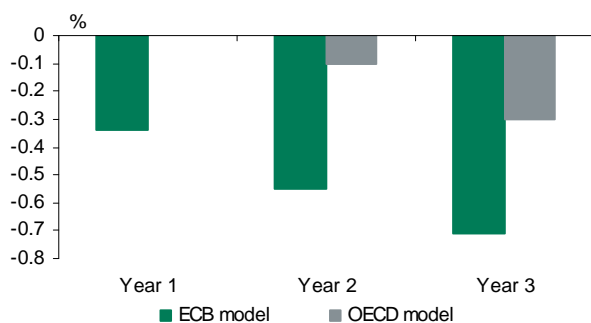
households and corporate balance sheets in peripheral countries under various assumptions.

## Benign macro evidence from econometric models and Monetary Conditions Indices

Macroeconometric models can provide us with a rough estimate of the theoretical impact of monetary tightening on the real economy, with all the usual caveats due to the uncertainty around those estimates and the structural changes in the monetary transmission channels since the beginning of the EMU. Based on research from the ECB<sup>1</sup> and the OECD<sup>2</sup>, **the aggregate impact on Eurozone GDP of a 100bp ECB rate hike looks rather manageable and spread over time.** The drag on growth would be no more than 0.3% of GDP in the first year and 0.75% over 3 years. Our central scenario is for three 25bp rate hikes in 2011 and a cumulative 150bp of monetary tightening until Q312, but then the economic impact would likely be spread until the end of 2014.

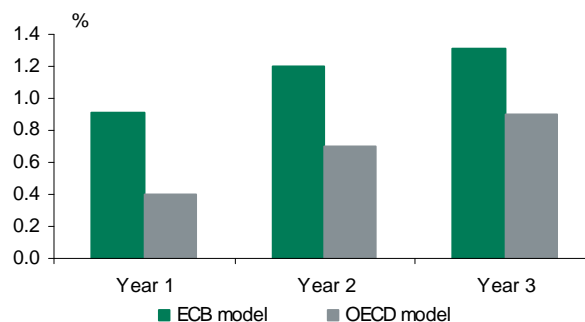
More importantly, **the impact from changes in FX valuations appears to be much larger than the impact from higher interest rates.** For instance, the GDP impact of a 5% depreciation in the Nominal Effective Exchange Rate of the EUR – which is more or less our scenario over the next 12 months – is said to be around two times larger than the projected increase in short-term rates.

Impact of a 100bp ECB rate hike on Eurozone GDP



Source: ECB, OECD, Crédit Agricole CIB

Impact of a 5% NEER EUR decline on Eurozone GDP



Source: ECB, OECD, Crédit Agricole CIB

ECB models also provide an estimate of the GDP response to monetary tightening in each Eurozone country, suggesting that **Greece, Italy, Spain, Portugal and Ireland would be the most exposed (in that order).** We would caution against taking those estimates at face value, however, as the models were based on historical data up to 2001, i.e. before the full private sector leverage process really started in most peripheral countries.

Instead, **we chose to compute another quantitative indicator – a Monetary Conditions Index (MCI) – in order to assess the stance of monetary policy taking account of both the interest rate and the exchange rate channels.** MCIs have been first developed in the 1990s by the Bank of Canada in particular as a policy tool used as guidance for monetary policy. Although many different methods exist, a MCI is usually calculated as a weighted average of short-term rates, long-term rates and effective exchange rates, in nominal or real terms. All variables are normalised with respect to a reference period, and the coefficients reflect the sensitivity of the MCI to a change in each component. They are usually estimated through simple econometric models in which GDP is regressed against the whole sample of financial variables, controlling for other macro variables such as World GDP as a proxy for external demand.

**An increase in the MCI reflects a tightening of monetary conditions (likely to impact GDP growth negatively) whereas a decline in the MCI indicates an easing (with a positive growth impact)**<sup>3</sup>. We first compute a Eurozone-wide real MCI using coefficients estimates from OECD and INSEE models<sup>4</sup>. Based on our forecasts for ECB

<sup>1</sup> "Monetary policy transmission in the Euro area - Where do we stand?", ECB working paper (January 2002).

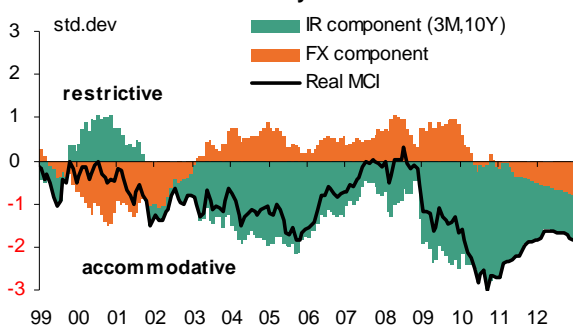
<sup>2</sup> "The OECD's new global model", OECD working paper (May 2010).

<sup>3</sup> As for the Taylor rule, MCIs are subject to many methodological and statistical shortcomings and should thus be used with caution. That said, MCIs can provide a useful reference to compare current monetary and financial conditions to the past, as well as to make forecasts based on our expectations for interest rates and exchange rates.

<sup>4</sup> « Les conditions monétaires et financières courantes et passées dans la zone euro et aux Etats-Unis », DPAE Minefi (June 2005).

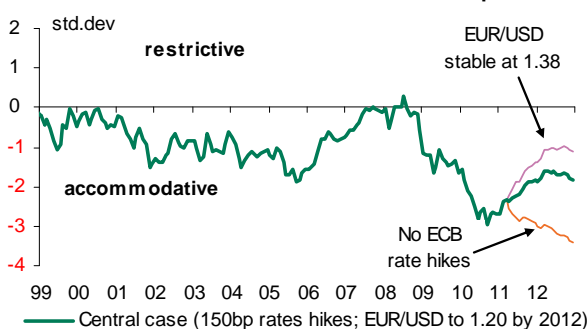
rates (a cumulative 150bp increase by Q412), long-term rates (a gradual increase in 10Y German yields to 4.25% by Q412) and exchange rates (a weakening in EUR/USD to 1.18 by Q412, which should translate into a 8-10% depreciation of the EUR in nominal effective terms), our simulations confirm that **the projected ECB tightening would leave the overall monetary stance as very accommodative in the coming two years**. The MCI would end up 2012 at levels similar to those observed in late 2005, before the previous tightening cycle began. However, **this result would only hold under our key assumption of a weaker EUR in effective terms**.

Eurozone Index of Monetary and Financial Conditions



Source: Eurostat, ECB, IMF, Crédit Agricole CIB

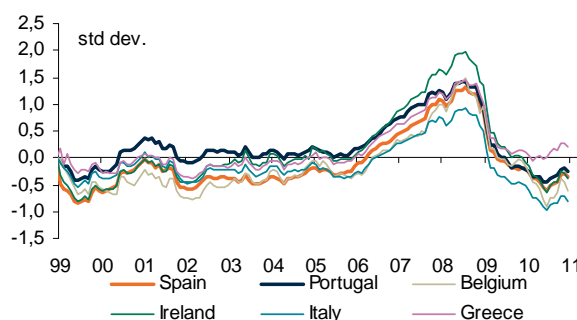
Eurozone MCI under various FX and rates paths



Source: Eurostat, ECB, IMF, Crédit Agricole CIB

We also compute national MCIs to further illustrate the idea that the final impact of monetary tightening will vary significantly from one country to the other. In order to get the most robust model possible we chose to jointly regress GDP growth in 'peripheral' countries (Spain, Italy, Ireland, Greece, Portugal and Belgium) against the same set of explanatory variables (short-term and long-term rates, NEER and World GDP). Only long-term rates and effective exchange rates vary from one country to the other.

Peripheral monetary conditions still accommodative except in Greece



Source: Eurostat, ECB, IMF, Crédit Agricole CIB

The results suggest that **monetary conditions in peripheral countries have not yet tightened significantly** as very low short-term rates and roughly neutral NEER have helped offset the impact of wider sovereign spreads. Again, under our central assumptions for those variables, **the expected tightening in monetary conditions should remain overall limited over the forecast horizon** although MCIs would likely go back into restrictive territory at some point in 2011 just like they did in 2006.

In addition to the past and future changes in the national MCIs, two interesting results should be mentioned. Firstly, the weights of the 3M interest rate (32%) and the NEER of the EUR (63%) in the national MCIs are significantly higher than the weight of the 10Y interest rate (5%). Obviously the conclusion would have been different if we had focused on public debt dynamics. Secondly, **MCIs suggest that interest rates and exchange rates are affecting GDP growth with a lag of ten to sixteen months** while World GDP is having a significant impact on Eurozone countries GDP with a three month lag.

## Why the Eurozone periphery is different – focus on the indebted private sector

### The fragile nature of housing loans in the peripheral

The factor which exposes the periphery countries the most, concerns the impact a rate hike would have on mortgage repayments. **As illustrated in the chart below, most housing loans in peripheral countries were established under variable rates with short resetting periods**. In Portugal and Spain rates are linked to the 6 and 12 month Euribor respectively. In Greece and Ireland rates are adjusted to the main refinancing rate. However, the share of variable rates has decreased significantly for Greece from 2005 to 2007, which probably reflects the impact from low interest rates in 2005. In contrast, housing loans in

core countries are predominantly fixed rate: long term fixation of interest rates is the usual procedure for housing loans in Germany and the Netherlands (between 5 to 10 years), as well as in France and Belgium (usually longer than 10 years).

EMU : characteristics of loans for house purchases				
2007	Prevailing type of interest rate	Share of variable rate loans (% total new loans *)	Index for adjusting variable interest rate	Typical maturity (years)
BE	Fixed (over 10 yrs)	10	T-bills (12mths) bonds (1-10 yrs)	20
DE	Fixed (over 5<, >10 yrs)	15	LT mkt rates	25-30
IR	Variable	67	ECB main refi rate, 3 mth EURIBOR	31-35
GR	Variable	28	ECB main refi rate, 3 mth EURIBOR	15-20
SP	Variable	91	12 mth EURIBOR	30
FR	Fixed (over 10 yrs)	15	12 mth EURIBOR	19
IT	Variable	47	3 mth EURIBOR	22
LX	Variable	90	ECB main refi rate	20 <
NL	Fixed (over 5<, >10 yrs)	18	LT mkt rates	30
AT	Variable	61	3 mth EURIBOR	30
PT	Variable	99	6 mth EURIBOR	30-40
EMU	-	43	-	-

Source : ECB bank questionnaire and MFI interest rate statistics, Crédit Agricole S.A.

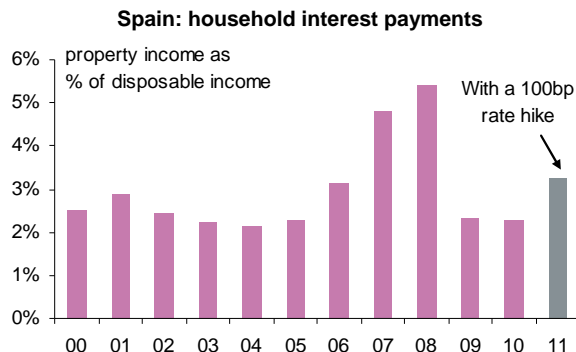
\*share of loans with a resetting period of up to 1yr in total volume of new loans for house purchases in 2007

From that perspective, **Portugal, Ireland and Spain are the three most vulnerable countries to a rate hike.**

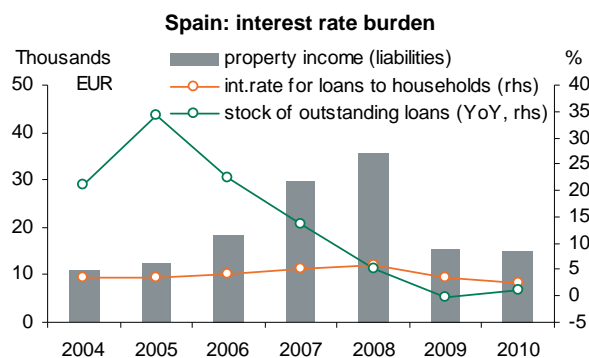
### The case of Spain

We have attempted to quantify the impact of a 100bp rate hike on households using available data on Spanish national accounts<sup>5</sup>. As shown in the graph below, interest payments as a percentage of disposable income reached their peak in Spain in 2008. Thereafter, interest payments dropped sharply thanks to: the drop in rates to their exceptionally low crisis levels and a slowdown in household indebtedness. **According to our rough estimates, an increase in the interest rate of 100bp over a one year period would increase the interest burden for Spanish households by approximately EUR6bn, increasing the interest payment to household disposable income ratio from 2.2% to 3.3%**, assuming a stable stock of outstanding debt in 2011. Clearly the ratio remains significantly lower than its peak level in 2008, but the current economic climate in Spain is significantly more fragile today than three years ago.

<sup>5</sup> Household interest payments are accounted for in "property income liabilities" in the national account data for non financial accounts.



Source: INE, Crédit Agricole CIB



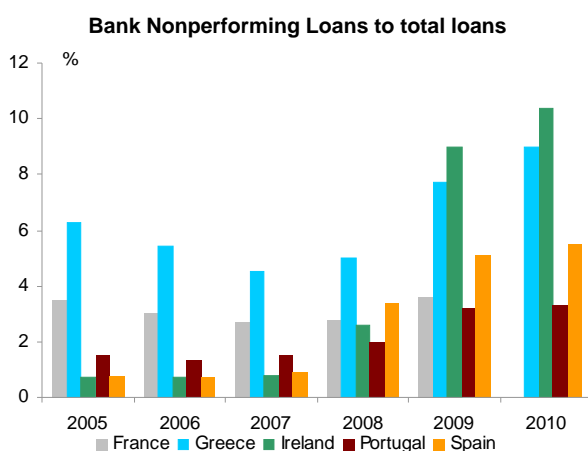
Source: ESI, ECB, Crédit Agricole CIB

In reality, banks are unlikely to pass on the full ECB rate hikes instantly in 2011, so that the interest burden would be felt over several quarters. Generally speaking, the impact of a rate hike on economic activity has a transmission period of approximately eighteen months in Spain, and the hikes are expected to be gradual. Therefore the negative impact on consumption will also be gradual. If we spread the impact of the rate hike on disposable income over the next two years (a quarter in 2011 and three-quarters in 2012) consumption should be reduced by 0.2 percentage points in 2011 and 0.5 percentage points in 2012. It is important to keep in mind that the above calculations are rough estimates and do not take in to account the impact a rate hike could have on the savings rate.

### The rate hike will weigh on consumption and further weaken balance sheets

What is however certain is that for Spain, and the other periphery countries, the imminent rate hike comes at a time when households are already in a very challenging situation. Unemployment is at historically high levels and revenues are already being squeezed by tough fiscal tightening measures. The combination of these factors leads us to believe that private consumption will continue to underperform in these countries. In 2011, private consumption is expected to contract in Portugal (-2.6 YoY) and Ireland (-1.1%), and remain highly subdued in Spain (+0.1% in 2011 after +1.3% in 2010).

In addition to the impact on households, the rise in interest rate poses an additional risk to the housing and banking sector. Peripheral banks have already begun to shrink their balance sheets as those borrowers who could repay their loans underwent a painful deleveraging process and those who could not pay were transformed into non-performing loans. However, given the size of private sector indebtedness before the crisis, non performing loans still have the potential to keep rising as low income earners struggle to pay their mortgages<sup>6</sup>. Finally, regarding the housing sector, the limited access to credit and the increasing oversupply of housing would further delay the recovery in the construction sector. We expected construction investment to continue contracting in the above three countries.



Source: National authorities, IMF, Crédit Agricole CIB

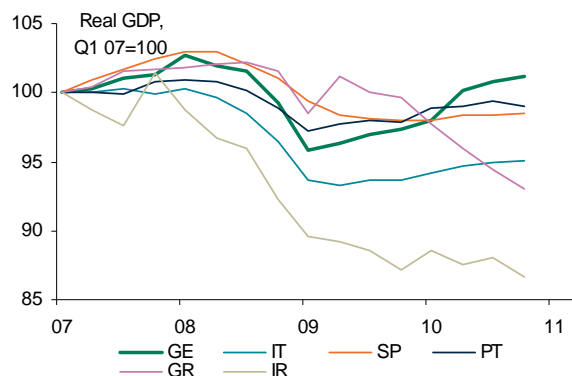
## Conclusion: an obstacle to EMU 're-convergence'

While the aggregate impact of monetary tightening on economic growth looks rather manageable for the Eurozone under our central case (150bp of ECB rate hikes in the next eighteen months alongside a weakening in EUR/USD to 1.18 by Q4 2012), the adverse impact on the periphery is likely to be stronger due to structural differences.

<sup>6</sup> As highlighted in a paper published by the Bank of Spain, the impact of a rise in interest rates on the household debt burden should also be assessed by income segment, and not only through aggregate indicators. Contrary to the USA and the UK, the debt ratio of Spanish households is inversely related to their income level. One would expect that lower income households are more sensitive to changes in the interest rate than those with higher incomes.

Overall, the situation in peripheral countries has not yet stabilised and therefore the interest rate hike, although small, places yet another obstacle for GDP growth on these already weakened economies. Households' purchasing power in particular would remain constrained as higher variable rates would weigh on disposable income growth. Moreover, the risks for the banking sector are important in the form of higher funding costs and a likely rise in non-performing housing loans.

### Eurozone real GDP – a long road to re-convergence



Source: Eurostat, Crédit Agricole CIB

Against this background, we see it as unlikely that divergence between Eurozone economies will be reduced quickly. **At best, the early process of re-convergence looks set to remain very gradual**, which may amplify the need for core Eurozone members to "ring fence" the smaller countries in the periphery, and watch closely the developments in Spain, in particular.



## Appendix: theoretical transmission channels of a rate hike to the real economy

In theory, the level and changes in the ECB main refinancing rate influence the economy through two main channels: the interest rate channel and the credit channel. In turn these will impact the monetary and financial environment and ultimately feed through to GDP growth performance.

### *Impact of the increase of the ECB refinancing rate on the monetary and financial environment*

An increase in the ECB rates will bring about an adjustment in other interest rates, exchange rates and prices of assets depending on investor arbitrage:

a) **The impact on the long-term interest rates should remain modest.** A short-term rise in rates will have a 'portfolio effect' (investors redirect their capital towards short-term money-market instruments). However, if markets are convinced that the risks of future inflation are pushed aside by the implementation of a more restrictive monetary policy, the inflationary component of the long-term interest rates will be reduced (Fisher effect).

b) **Unfavourable effects on share prices may be observed,** the price of a share can be perceived as the present value of future dividends. An increase in the discount factor will, all things being equal, weigh on the net present value of future cash flows. There is another channel (risk taking channel) as an increase in the yield of risk free assets could reduce the appetite for riskier assets.

c) **In theory an appreciation of the EUR (everything else held constant),** the currency will become more attractive (increase in interest rate differentials) and will provoke capital inflows.

d) **The price increase of the short-term financing is felt by markets, but also feeds through to the banking sector.** Interest rates determine the funding costs for banks both on monetary and financial markets. Therefore, the more their resources are expensive, the less banks are incited to lend and this at more expensive rates. Monetary policy thus has a simultaneous impact on the conditions and the volume of credit distributed in the economy. As a result, an unfavourable impact can also be felt in the housing market.

### *Impact of this new monetary and financial environment on GDP growth*

This new monetary and financial environment, characterized by higher long-term rates, lower asset prices, an appreciation of the EUR and a more limited access to credit, is going to impact the real economy in various ways:

a) **Substitution effect:** The rise in interest rates is going to drive households as well as companies to revise their arbitration between immediate consumption and now more attractive savings.

b) **Income effect:** A rise in interest rates has a bearing on the flows of interest income received by creditors and of interest payments paid by debtors. For a country characterised by net creditor agents, an increase in interest rates will increase the disposable income. The magnitude of this effect depends on the size and the composition of the balance sheets of agents.

c) **Unfavourable wealth effect:** the rise in interest rates will have a negative impact on asset prices (financial and real-estate). This can bring households to perceive a decrease in their wealth, especially in a more long-term perspective. Their permanent income will have decreased and they may be tempted to decrease their current consumption spending.

d) **Deterioration of private sector balance sheets:** By increasing the interest expenses of variable rate loans and new financing, the rise in rates degrades the financial situation of agents. This is particularly the case for company earnings. On the one hand, demand for credit from companies and households will likely slow down. On the other hand, banks will tend to be more cautious with their lending conditions. This greater caution amplifies the restrictive of credit supply, already brought about by the rise in funding costs mentioned above.

e) **Exchange rate effects:** The appreciation of the EUR should decrease external demand for European products and increase the demand for foreign goods in the Eurozone, in turn weighing on the recovery in net exports. The efficiency of this channel also depends on the degree of international trade openness of an economy.

The combined slowdown in household consumption, corporate investment and net exports, will cause a drop in total demand followed by a decrease in effective production. The rise in the ECB refinancing rate is expected to have an almost immediate effect on the exchange rate and the long term interest rates (even anticipated). However, according to our estimations, an eight to twenty-one month delay is expected between the moment rates are hiked and their effect on production. ■.



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