Economic Outlook

Global

- **Global growth will accelerate in 2014,** although below previous recoveries and with downward risks.

- **Emerging markets were resilient to the impact of the crisis,** is it an indication of structural change?

- **The GDP is not the only relevant factor behind the equilibrium level of debt,** economic structural factors and the regulation of the banking sector are also important.

Index

Closing date: November 4, 2013
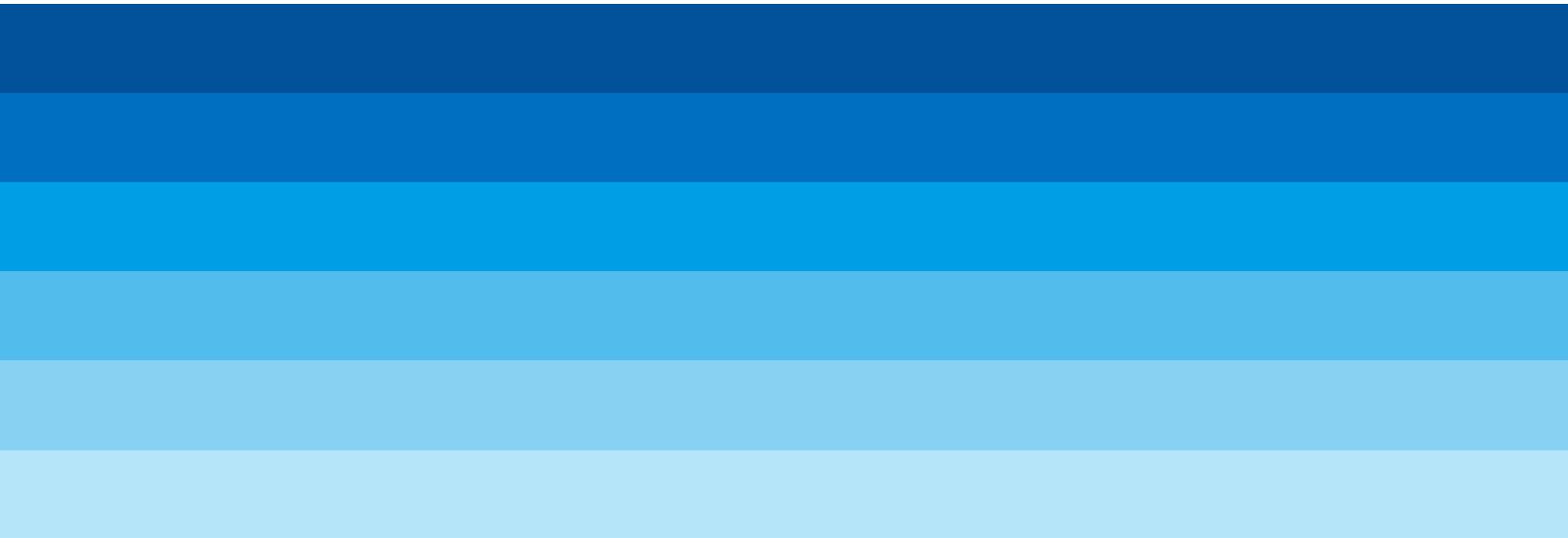
1. Underway recovery with downward risks if the policies do not support the positive tone in the markets

The economic assessment of the last quarter is positive, with a decline in risk aversion in the financial markets. The confidence indicators for manufacturing, which are a reliable cyclical signal, have continued to improve in the advanced economies and have reversed the previous deterioration seen in some major emerging economies like China. There has also been a decline in financial stress and in outflows from emerging markets, both as a result of the change in expectations about the Fed swiftly ending its policy aimed at increasing liquidity. The recovery of growth in China, the end of the recession in the euro zone and the (temporary) fiscal agreement in the U.S. complete the succession of events that have kept risk aversion in the financial markets at relatively low levels.

The global economic cycle continues to recover, although moderately compared with previous cycles. The global economy will grow nearly 3% in 2013, somewhat less than we expected previously, given the downward revisions of growth in the U.S. and Mexico and in some economies of emerging Asia. Nevertheless, we maintain our forecasts of an upturn in growth in 2014, now to around 3.5%. This is a scenario of limited recovery, supported more by the advanced economies (which except for Japan should grow more strongly in 2014) and with a sustained contribution from the emerging economies in both Asia and Latin America.

The risks surrounding the global economic landscape are bearish, although the probability of menace events strongly enough to derail the ongoing recovery is lower today than three months ago. Firstly, a "disorderly exit" from the Fed's QE program, i.e. an "excessive" increase in long-term rates in the U.S. (as a result of the market's loss of confidence in the exit pace sought by the Fed, not of stronger growth), would place a strain on global financial conditions. This would slow down an already moderate global recovery, especially in the euro zone, where financial fragmentation, the reforms pending in the banking sector, and the length and depth of the recession that is now coming to an end have resulted in a situation of weakness. Also related to the U.S., another risk is the short-term resolution of the budget negotiation and the debt ceiling, a matter that will be taken up again in a few weeks. Secondly, an adjustment of growth in China and other emerging economies, as a result of either idiosyncratic factors or of the dilemmas faced by the domestic policies of the economies most vulnerable to the exit from the Fed's QE program. In the case of the Chinese economy, although the growth outlook has not changed, there is a lack of guidance that would ease the risks beyond 2013: the financial vulnerability of some business sectors that resort intensively to credit, the liberalization of the banking sector, regional debt and the opening of the services sector to refocus growth on domestic demand.

Lastly, **the possibility of a resurgence of the euro crisis is a globally relevant risk.** One of the most positive elements of the current situation is the markets' changing perception about the European currency area due to the end of the recession and the advances on the road to banking union. The return to growth has been the consequence of the effective short-term easing of fiscal policy and the ongoing confidence in the ECB's role as a guarantor of the currency's stability. **The authorities need to sustain the positive markets mood with decisive progress in strengthening the monetary union, and in particular banking union (where the planned advances for 2014 are key).** All of them must be supported by measures that reinforce the sustainability of public debt in the medium term.

In short, in the global scenario that we consider most likely, the improved confidence should be reflected in stronger GDP growth from the second half of 2013. Nevertheless, we should point out that **improving the confidence of households and businesses and lowering financial markets stress depend on how the economic policies are implemented and coordinated in the U.S., Europe and China** in order to reduce uncertainty, face their long-term challenges and, at the same time, shore up the recovery.

2. A slow global recovery with bearish risks

The economic cycle is improving, above all in advanced economies, although it is still far from a strong recovery

Two general features have characterized the last quarter for the global economic scenario. First, the confidence indicators of businesses and the volatility of the financial markets have continued to reflect the low probability of tail risk events, those that could be disruptive for the global situation. Thus **economic recovery improves and there is less risk of it derailing. However, some events have contributed to a scenario of, at the end, a feeble global recovery within a one or two-year horizon.** They are events with a current impact (the partial closure of the US government) but also a future one (the tightening of financial conditions due to expected end of the exceptional support of monetary policy).

Overall, we have revised down by 0.2 pp the expected growth for the global economy in 2013 to 2.9% and in 2014 to 3.6%. The revision of 2013 growth is due to the worse figures recorded in the U.S. and the slowdown in some of the countries in developing Asia, which are also affected by financial turbulence in the wake of markets expectation of an imminent tapering of QE following FED's last May announcement. Growth in 2014 has also been revised down to 3.6%. The emerging markets are behind this downward revision, (except for China, where we stick to our forecasts), although they will continue to be the biggest contributors to global growth (Chart 1). The higher rate of global growth in 2014 is backed by an acceleration of the economy in all geographical areas, except for Asia, where growth is expected to remain at the same levels. Particularly worth noting is the improvement expected in the Eurozone after two years of recession, and the significant acceleration in Latin America after the blip in 2013 (see tables in the Appendix for more details).

Chart 1
Global growth

Emerging economies
Advanced economies
Global growth
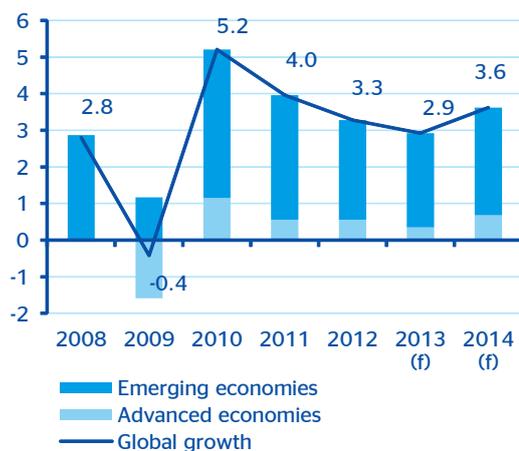
Source: BBVA Research and IMF

Chart 2
U.S.: Private non-agricultural employment growth (monthly changes in thousands, 3-month moving average)
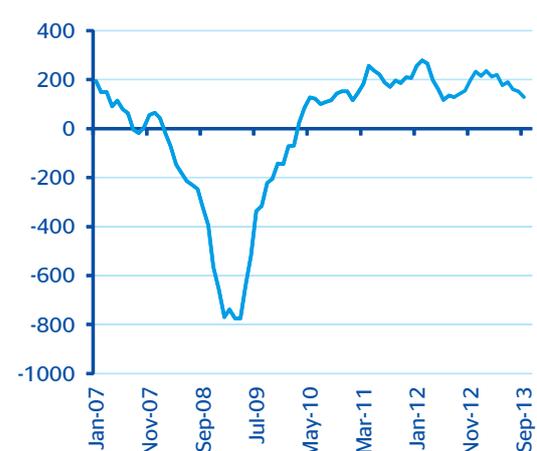
Source: BBVA Research and BLS

The tension in the financial markets caused by the announcement of the Fed's tapering eases, providing a boost not only in the U.S.

The Fed caused surprise when in September it decided not to start the process of tapering in its quantitative easing (QE) program. By delaying the start, it underpinned the nature of the program as data-dependent. It appears that **the data have not been as expected since the time in May 2013 when the Fed began to outline it exit plans.** The growth acceleration is still expected in the second half of the year, but Household's consumption is weaker than expected, while the real-estate market, which had been gaining strength, has suffered from the initial reaction to tapering. At the same time, the labor market continues to be weak (Chart 2), and there is uncertainty inherent to the prolonged negotiations on the budget and the public debt ceiling, which have to be repeated in a few weeks. **The lack of long-term solutions and the repetition of a brinkmanship strategy in fiscal negotiation increase the probability of a slowdown in decisions on expenditure and investment, as well as the direct impact of the partial closure of government activity.**

The clarifications on the process of tapering, which the Fed's members are preparing in the light of the unexpected reaction of the market to their first announcement and its delay until (possibly) the start of 2014, have reduced the risks of a derailment in the recovery. **The initial market response to the tapering announcement tightened financial conditions in advanced economies to over-restrictive level for their cyclical moment,** as well as putting a sudden brake on finance in some emerging markets, particularly those with the weakest fundamentals and that are at the same time financially most integrated.

However, **much of the rise in long-term interest rates recorded since May** has been reversed (Chart 3). The markets do not now anticipate rises in Fed Funds rates until 2015, in line with what was discounted by the market immediately before Bernanke suggested that he would initiate the tapering process (Chart 4).

Chart 3
U.S.: yield on 10-year government debt
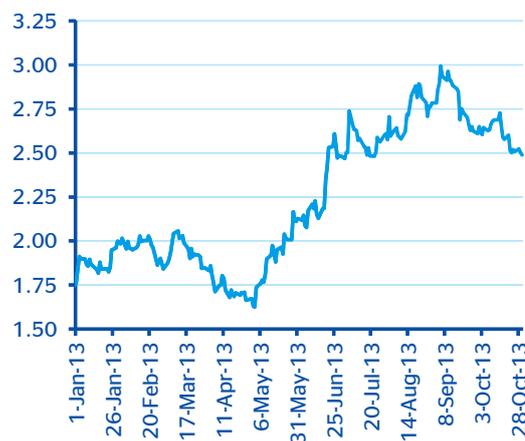
Chart 4
U.S.: implied Fed fund rates

— 22-Oct-2013

— June 25th (one week after June FOMC meeting)

— May 21st (one day before Bernake´s congressional hearing)

Source: BBVA Research
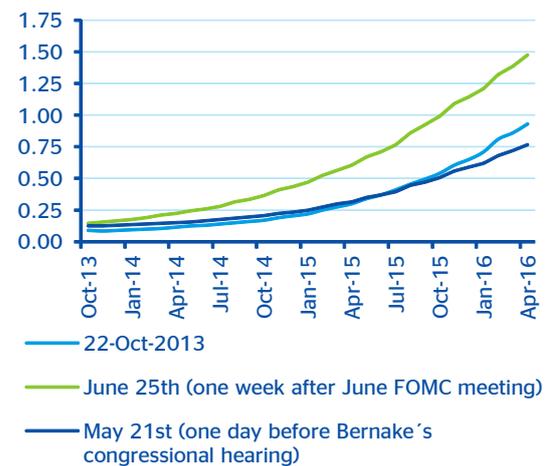
Source: BBVA Research

In addition, **volatility and financial tensions have eased at a global level, particularly regarding emerging markets** in Asia and Latin America, which are also affected by major capital flight. The first signs that the Fed could be considering putting an end to its monetary expansion program (with all the reservations and steadiness adopted) led to a major depreciation of the currencies of emerging markets, as well as major capital flight (Chart 5). These financial tensions coincided with doubts about the performance of these economies during a slowdown that was becoming more marked.

Chart 5
Flows to emerging economies (over total portfolio assets, June 2013, %)
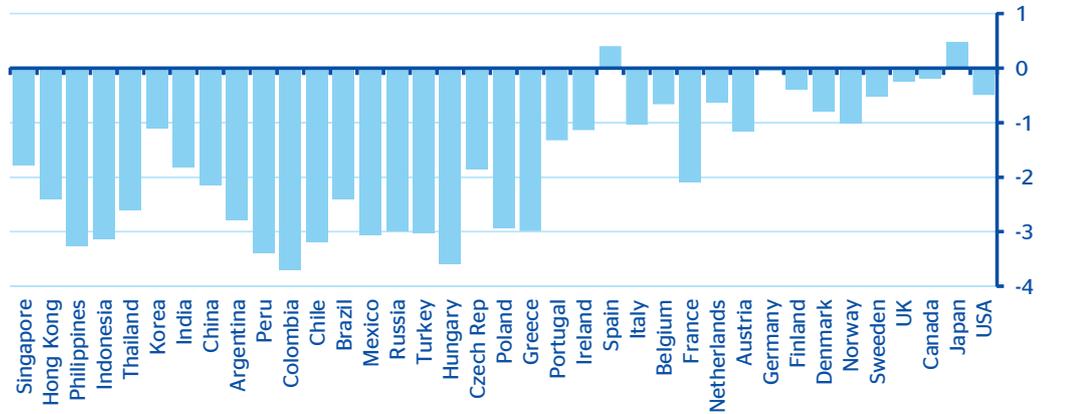
Source: BBVA Research and EPFR

The severity of capital flight and the depreciation of currencies following expectations of an imminent tapering raised fears of a "sudden stop" of emerging markets funding and then a steep fall in economic activity. However, the sell-off process has gradually been losing intensity, and as can be seen in Chart 6, we are far from the level of severity of capital outflows observed after the collapse of Lehman Brothers. At the same time, emerging markets show some indications of a recovery in confidence, after the check in the middle of the year (Chart 7).

Chart 6
Portfolio flows to emerging markets (% assets under management, compared with pre-crisis levels)

Source: BBVA Research and EPFR

Chart 7
Emerging markets: manufacturing PMI

Source: BBVA Research and Haver

In any event, tapering will end up arriving, and change the global scenario of liquidity injections that favored indiscriminate flows to emerging markets. The impact of tapering, once it is effectively underway, will probably be a greater discrimination in flows toward emerging markets according to the fundamentals of each of them (current-account deficit, foreign-currency debt levels, greater or lesser maturity of short-term debt, etc.). In any event, the extra time allows a reduction in the risk of a sudden fall in economic activity, at least in the short term.

China once more stimulates its growth, but in a more limited fashion; its increased demand drives other economies

In China, the doubts at the start of the year on the possibility of a sharp adjustment in its economy have also dissipated, at least in the short term. Over the year, the economy has maintained a high rate of growth, and the most recent data (third quarter) suggest that the GDP is picking up (Charts 8 and 9). The better than expected figures in 2013 mean that the annual growth outlook has been revised upward slightly from 7.6% to 7.7%. **Even so, doubts remain on the sustainability of growth in the medium and long term,** as the recent upturn in growth has been the result of the improvement in foreign demand, but also of one-off measures of tax policy and public spending with a renewed use of credit. This means that financial **vulnerabilities have been allowed to increase; they are still manageable, but they have to be addressed.** Priorities include reducing excessive reliance of credit in some sectors of the economy; advancing domestic financial liberalization and reducing the role of shadow banking; and reforming fiscal relations to address high local government debt. The appropriate management of these aspects must ensure a steady transition, a re-balancing of growth toward more weight of domestic demand and household consumption.

Chart 8
**GDP growth in emerging markets
(q/q %, seasonally adjusted)**
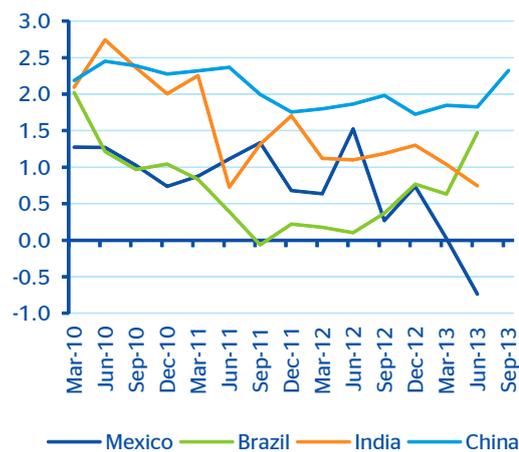
Source: BBVA Research and Haver

Chart 9
China: index of industrial output (y/y %)

Source: BBVA Research and Haver

The perception on Europe improves and the most extreme risks are dissipated. The reforms geared toward better governance continue and growth returns

In Europe the forecasts have been confirmed and the economic situation has continued to improve, to the point that the Eurozone emerged from the recession with growth of 0.3% in the second quarter of 2013, after 6 quarters of recession. Recent economic data suggest that the trend will have been maintained in the third quarter, when the Eurozone would have once more recorded a few tenths of a percentage point of growth. The reading of the data is positive in two respects. First, as the **recent upturn is based not only on foreign demand, but also on an improvement in domestic demand.** Second, the improvement in activity is not only boosted by countries within the center of Europe (with Germany recording strong growth, but also France surprising recently), but the **improvement also extends to the periphery** (with Spain and Portugal emerging from recession, and Italy reducing its level of decline), contributing (together with the progress made to improve governance and the reforms) to eliminate the systemic risks characterizing previous quarters. The recovery of activity has been helped by a reduction in financial tensions in the area and by a relaxation (de facto) of the more short-term targets of fiscal consolidation, implicitly tolerated by the European authorities.

GDP growth in this part of the year formed part of our scenario, and there has been no additional element to make us change our expectations of a weak recovery. In 2013 Europe's GDP will fall by 0.4% and grow by 1.1% in 2014. The weak recovery is consistent with the deleveraging process underway in the private sector in some economies in the area and the financial fragmentation that is still in place, which affects the capacity of bank credit supply. Monetary policy will continue to be loose, offsetting in part the continued negative effect on growth of fiscal policy. Additionally, **far from inflationary pressures, the ECB has shown itself prepared to act if necessary,** either with a new round of long-term liquidity for the banks, or even with another cut in rates (which cannot be ruled out). At the same time, **the next few months will be decisive in progress toward banking union, with the entry into operation of a single supervisor, the ECB, and the definition of the mechanisms for bank resolution, the model for implementing which is still under discussion.**

Chart 10
BBVA Research Financial Stress Indicator

Source: BBVA Research

Chart 11
Europe: GDP growth (q/q %)

Source: BBVA Research and Haver

The fiscal agreement in the U.S. has been another patch that does not address long-term fiscal sustainability and does not avoid a contractive short-term impact

On October 16 agreement was reached between the two parties in Congress and the Senate allowing the reopening of the Federal Government after two and a half weeks of closure, and elevating the debt ceiling. However, the agreement reached is a simple extension of the current situation, as it only includes that the Government will have finance until January 15, while the new debt ceiling will be reached on February 7 (though it could be extended until March, with "ingenious" measures by the Treasury). In addition, the agreement creates a committee of 29 members of Congress and the Senate who will have to propose a plan before December 13 on a 10-year budget horizon.

Intense negotiations are drawing near on cuts in discretionary expenditure and increases in taxation. The U.S. thus once more has to address an uncertain process that it has already passed through in these months on previous occasions, and this can only have negative consequences. First, there is the perception that the political confrontation has been too bitter, and that it could have an impact on the electoral outlook. This suggests that a more moderate stance that is more prone to making pacts when the February deadline approaches. Second, the closure of the Government will also have economic consequences, and not only direct ones. It is true that the markets have so far remained relatively immune to the imminent possibility of an event as disruptive as a default on the risk-free asset of the world economy. It seems self-convinced that,

in one way or another, an event of this magnitude would be avoided, through a last-minute pact, as in fact happened. That is not to say that there has been no impact on the economy. **Most likely is that the partial closure of government for 16 days has had a relatively marginal direct effect on the GDP for the quarter, perhaps a few tenths of a pp. However, the threat of this process continuing may have an additional impact.** This effect, more difficult to measure, would be through the drain on consumption and investment in the face of increased political uncertainty related to the government's capacity to meet its spending commitments. Overall, we consider that the decision that the Fed has to take on when to start the reduction in its asset purchase program (between December and the first quarter of 2014) will only depend on the state of the economy. In any event, **the situation in which economic policies push in opposing directions will continue, with a loose monetary policy that will continue to be so for a long period, and an unnecessarily contractive fiscal policy in the short term.** Thus the U.S. public deficit will have fallen without market pressure (unlike in Europe) from 6.8% in 2012 to 4% in 2013, which can be considered a drain of 1.3 percentage points of GDP growth in 2013. And the long-term challenges for the fiscal sustainability of the U.S. economy have not been tackled.

Risks in the forecast: downward biased but with less probability and lower impact

The risks to the moderate recovery scenario with a growing contribution from advanced economies and a sustained contribution from emerging markets have been reduced. This does not take away the fact that the balance of risks continues to be downward. It is worth pointing out first due to its character the possibility of a "disorderly exit" from the Fed's QE, which could generate an excessive increase in interest rates (in the U.S. and in other countries), not as a result of improved growth prospects or higher inflation, but due to uncertainty regarding the rate of exit planned by the Fed. **Financial conditions that are too tight for the rest of the world could terminate a global recovery if it is not especially dynamic, as it is particularly in the Eurozone.** In addition, it is also worth noting as a risk the resolution of the fiscal questions in the U.S., the budget and the debt ceiling, which have now been postponed until the first quarter of 2014. The negotiations that the parties have to carry out until then are a potential source of uncertainty and may lead to an additional drag if the fiscal drain increases.

Second, it is worth identifying as a risk factor the **adjustment in growth in China and in other emerging markets.** This could be the result of idiosyncratic factors, but also of dilemmas to which domestic policies have to address in a more acute global financial environment. Although as has been seen recently, the differences between economies are relevant, and an interruption in the recovery underway is not to be expected unless there are financial scenarios that are as adverse as those registered between the end of 2008 and 2009.

Lastly, **the resurgence of the euro crisis is a globally relevant risk.** The authorities have to support the positive perception of the markets with decisive progress to strengthen monetary union, in particular banking union. In all, there are a number of elements that could lead the better perception to change. Some peripheral countries are in a situation of lack of political consensus that could check the necessary reforms. Negotiations on the programs of Portugal and Greece may be the source of uncertainty. In addition, shortly work will begin on the review of the bank balance sheets and the test stress to risk scenarios, needed for the implementation of a single banking supervisor, the ECB. Finally, as has been shown by past experience, disagreements on the definition of policies that strengthen the euro area, in this case bank resolution mechanisms may produce tensions and volatility in the financial markets.

Box 1. Structural change in growth after the crisis

The global crisis that officially broke out in September 2008 with the collapse of Lehman Brothers[1] and continued with various episodes in the euro zone[2] until last year generated a worldwide decline in GDP in the order of -0,4 percentage points in 2009, compared with an average growth of around 4,0% in previous years (see Chart 12).

Despite being a crisis in advanced economies, **its impact varied across regions**. In the year of greatest impact of the crisis (2009), economic activity in developed countries declined by -3.4% (with falls of -4.1% in the EMU and -3.1% in the U.S.), while emerging countries grew by 3.0% (due mainly to growth in emerging Asia, led by China, which counteracted the slight decline in Latin America). The slowdown in emerging economies during the years of the crisis was considerably lower than in developed countries. One approach to this point is the one followed by the IMF and recently published by the IIF[3]. It calculates the percentage of GDP lost (or gained) during the years of the crisis in different countries and regions comparing the current GDP level (2013) relative to the level that would have been achieved if the growth trend observed in the years prior to the crisis continued[4] (i.e., the EMU –see Chart 13). In our case, we reproduce this calculations, but using our growth estimates for 2013[5].

As shown in Chart 14, **developed countries have been worse off by the crisis in terms of lost GDP, particularly in United States and the euro zone.** On the other side, emerging countries, which on average gained on growth during the crisis, specially in Latin America and emerging Asia[6] (thanks to strong economic activity in China).

Chart 12
World growth
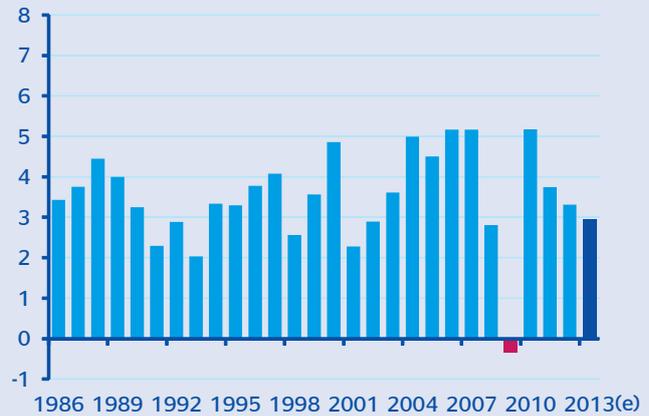
Source BBVA Research and IMF

Chart 13
EMU: real GDP and 98-05 trend
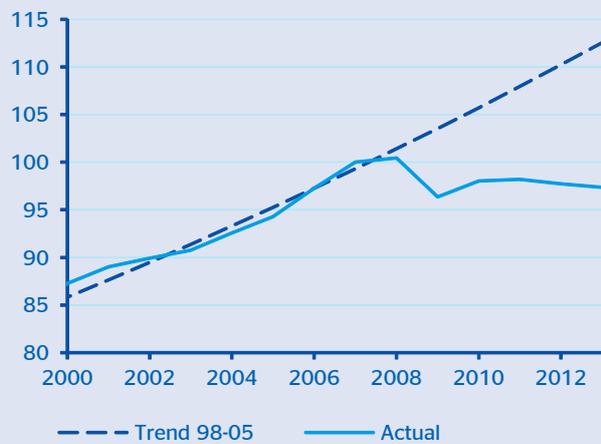
Source BBVA Research and Haver

1: The crisis built since 2005 as a result of the lack of confidence in subprime mortgages.
2: First Greek bailout (April 2010), sovereign and banking risk contagion among the peripheral euro zone countries (June 2011), risk of breakdown of the euro (May 2012).
3: 'Five years after the Crisis', Institute of International Finance, September 2013.
4: The IMF establishes the average growth between 1998 and 2005 as the pre-crisis trend. In this way, the calculation does not consider 2006 and 2007, as it attempts to reduce the distortions of the possible effects of the pre-crisis bubble.
5: In the few cases for which we do not have forecasts, we use those of the IMF's World Economic Outlook (WEO) of October 2013.
6: The performance of emerging economies as a whole is somewhat worse than that registered in emerging Asia and Latin America due to the poor performance of emerging Europe, which suffer the decline of the euro zone.

Chart 14
GDP observed in 2013 vs. pre-crisis trend
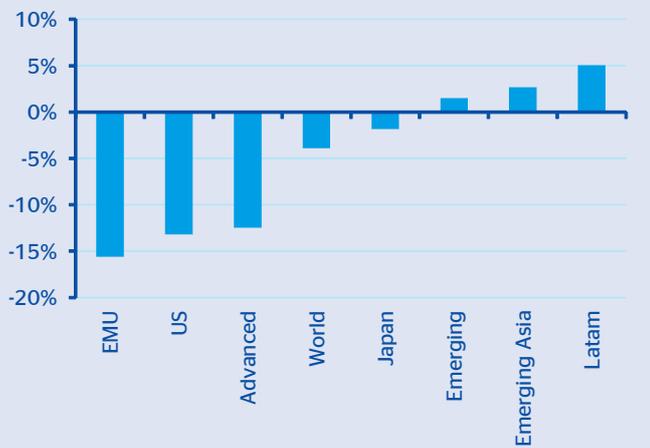
Source: BBVA Research

This first simple approach to the trend growth seems to show that the **areas at the end of Chart 14 would have at first registered "structural" changes in their growth capacity, actually Latin America upward and the euro zone and the US downward.**

A more refined analysis can be conducted using a statistical test of structural growth change. A structural change test determines whether changes in growth rates are sufficiently important (significant in statistical terms) to break previous dynamics. There is a wide range of structural change tests in the literature. However, because of its advantages and given that its characteristics adapt to the kind of test we are conducting, we have selected the Bai and Perron test[7], which we have run to a sample of 35 countries that include developed and emerging from different areas for the period 1980 to 2013, quarterly frequency.

The test's results[8] (see Table 2) confirm that **none of the emerging economies in the sample has undergone a structural change as a result of the crisis.** However, the test cannot verify the existence of a structural change in the US and Japan in recent years. On the other hand, the results are different when we analyze **the euro zone**. In this case, **the test does not reject the existence of structural change beginning in 2008 in nearly all members except for Germany.** Moreover, it is important to point out that the test also notices a structural change in the growth rates of the United Kingdom.

A preliminary conclusion of our findings after running the test is that **the current crisis can be interpreted in aggregate terms for almost all countries, as the negative phase of an economic cycle that has not changed the capacity to return to the average growth rates prior the crisis.** Thus, although the depth of the downturn was much greater than that observed in previous cycles, we should expect the crisis to have transitory effects on growth.

In contrast, **when the euro zone is analyzed, the test reveals that the impact of the crisis could go beyond the current cycle and show more permanent effects.** This behaviour is coherent with the specific governance vulnerabilities of the euro zone in banking and fiscal union.

Table 1
Potential GDP growth (%)

	91-00	01-10	11-20
US	3.3	1.9	2.1
EMU	2.2	1.4	1.2
China	8.7	9.3	7.9
LatAm	2.7	3.2	3.6

Source: BBVA Research

7: J. Bai and P. Perron, 2003. "Computation and analysis of multiple structural change models", Journal of Applied Econometrics, vol. 18(1), pages 1-22. In sum, the test identifies the periods in which a change in the growth average enables a significant improvement in the adjustment of a simple linear regression. A major feature of the test is that it proves robust to the existence of serial correlation and changes in the error's variance (heteroscedasticity).
8: The test is implemented by imposing a minimum period of 5 years between each structural changes (trimming). In the trade-off between sensitivity to changes and certainty in such changes as being "structural" or permanent, a 5 year period seems to be appropriate, as it makes it possible to start capturing what happened in the Great Recession of late-2008 and the first half of 2009.

In sum, this is in line with the estimates of potential GDP published recently by BBVA Research[9]. The estimates (see Table 1) suggest that all the geographical areas would increase their potential growth during this decade, particularly in the case of Latin America, which would improve by 4 tenths (from 3.2% in the last decade to 3.6% this decade). The only exception is the euro zone, which overall would lose 2 tenths of potential growth during this decade.

Table 2

Structural change in growth following Bai & Perron's test (selected countries)

Group	Country	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
	US																	■													
	China	■						■													■										
	Japan				■																										
Europe	France										■															■					
Europe	Germany	■																													
Europe	Italy																									■					
Europe	Spain					■					■							■													
Europe	UK				■					■																■					
Latam	Argentina							■							■					■											
Latam	Brazil	■								■																					
Latam	Chile			■																											
Latam	Colombia		■							■										■											
Latam	Mexico					■							■																		
Latam	Peru										■																				
Latam	Venezuela							■							■					■											
Emerging Asia	India																				■										
Emerging Asia	Indonesia													■					■												
Emerging Asia	Korea					■																									
Emerging Asia	Malasya				■																										
Emerging Asia	Philippines									■																					
Emerging Asia	Singapore					■															■										
Emerging Asia	Thailand													■					■												

Source: BBVA Research

9: See point 3, "Estimating Potential GDP at BBVA Research", in the third quarter 2013 Global Outlook, available at:
http://www.bbvaresearch.com/KETD/fbin/mult/1308_Globaloutlook_tcm348-398668.pdf?ts=21102013

Box 2.Impact of financial turmoil on growth in emerging markets

Growth in emerging economies has lost its momentum in recent months as lending conditions worsened in some of them and volatility in their financial markets increased. Since last June, financial tensions have increased significantly compared with the levels seen during the last part of 2012 and the first half of this year, with the latter being similar to those registered before the collapse of Lehman Brothers (see Chart 15).

This increased financial turmoil as a result of the market's view of the growing likelihood that the Federal Reserve would start to reduce its third program of purchases of financial assets in the US, such as sovereign bonds and mortgage securitizations, which just like the two previous programs has enabled liquidity to be injected into the market since the start of the crisis. The probability of lower liquidity on the global market increased the fear of reduced capital flows to emerging markets in search of profitability. In practice, these effects differed across assets and countries, since emerging Asia has been affected the most, mainly Indonesia and India, while the effect in Turkey and Brazil is not negligible.

Although the tensions have eased recently, the levels seen at the start of the year have not been reached again, as the market continues to discount the reduction in monetary stimulus packages by the Federal Reserve in the mid-term.

Thus, it seems appropriate to quantify the impact of recent market volatility on emerging economies as a result of the uncertainty surrounding the Fed's policy. In addition, we are interested in analyzing how growth would be affected by scenarios that involve even greater volatility in the emerging markets as a result of the growing lack of confidence about how the Federal Reserve is planning to gradually reverse its current stimulus policy.

To this end, we propose a structural autoregressive vectors model (SVAR), imposing sign restrictions on the answers of the original model in order to identify the shock we

are interested in, i.e. a shock of volatility in the financial market[10]. The model used incorporates as variables the GDP growth in the regions in which the analysis is conducted, namely Latin America and emerging Asia, while it introduces global GDP growth in order to capture the global economic cycle using this variable. As for the measurement of volatility we introduce into the model, we propose our financial stress index[11].

The first exercise proposed is to try to quantify the impact of the volatility registered since the end of May, in terms of lost growth in the emerging markets. To do so, we compare the answer in terms of economic activity in both regions resulting from conditioning a series of shocks that replicate the slight increase in tensions registered since last June in a scenario where this increase in tensions would not have been verified.[12]

Chart 15
BBVA Research Financial Stress Index in Emerging Markets

Source: BBVA Research

10: A VAR is a simultaneous equations model where each equation only includes lagged values of the model's variables as explanatory variables. In practice, VAR models do not verify restrictions, and this is why their shocks are not identified, although they can be identified by imposing certain criteria. In this case, the shock identification strategy we have used involves imposing sign restrictions on the original VAR model's impulse-reaction functions following Uhlig (see: Harald Uhlig, "What are the effects of monetary policy on output? Results from an agnostic identification procedure". Journal of Monetary Economics No. 52, 2005, pages 381-419).
11: The Financial Stress Index (FSI) summarizes in one single indicator the dynamics of a set of variables that measure the volatility in capital markets, interest rates and foreign currencies, credit risk (including sovereign risk) and liquidity tensions. For further details, please refer to the December 2012 Quarterly Country Risk Report, page 23, available on: http://www.bbvaresearch.com/KETD/fbin/mult/121200_Country_risk_Q4_2012_EN_tcm348-363546.pdf?ts=11102013
12: In order to build the scenario we have assumed that financial tensions will ease in the next two months and on January 2014 they will reach the minimum value, registered last June.

Chart 16
BBVA Research FSI in emerging markets, alternative shocks

Source: BBVA Research

Chart 17
Impact of FSI shocks on growth in Latin America

Source: BBVA Research

Chart 18
Impact of FSI shocks on growth in Emerging Asia
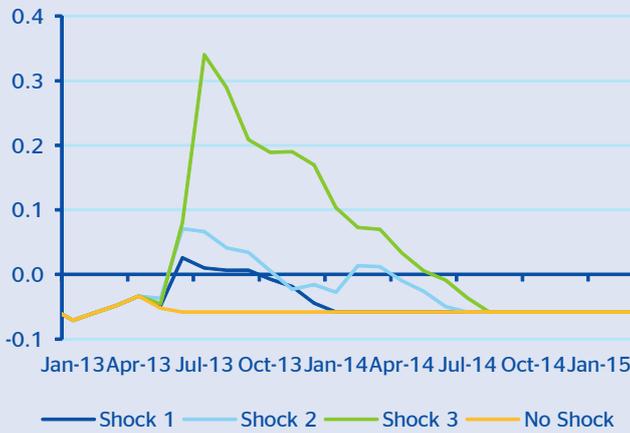
Source: BBVA Research

In addition, and in order to build a somehow more extreme scenario, we assume a series of financial tension shocks similar to those seen in emerging markets as a result of the crisis in the eurozone beginning in September 2011. In order to be able to compare both exercises, we will make the moment when tensions increased coincide, i.e. last June. As in the previous case, we compare the answer in terms of economic activity in relation to a scenario with no increase in financial tensions.

As seen in Charts 17 and 18, according to the model, both shocks would have a reduced impact on the activity of emerging economies, with emerging Asia displaying a slightly greater effect. It is important to point out that these results should be taken as minimum assumptions, given the difficulty that this family of linear models has in capturing the non-linearities present in this kind of exercise.

We propose a third scenario where the simulated shock is even more extreme. The aim of this new exercise is to try to establish the level of shock needed for the impact in economic activity terms to be relevant. In building this new scenario we have assumed that the financial tensions in emerging markets repeat the dynamics seen during the Lehman Brothers crisis[13]. In this case the answer produced by the model is considerable, as seen in Charts 17 and 18.

The conclusion from the exercise is that **shocks in the financial markets equal to the one observed recently, or somehow more pronounced, should have no significant impact on the level of economic activity in emerging markets.** It would thus be necessary to observe a shock on a scale similar to the one registered during the Lehman Brothers crisis to notice significant declines in economic activity. However, it is unlikely that this kind of shocks will be generated in emerging economies, as it seems necessary for them to arise not only from an isolated deterioration in their conditions, but also in combination with a highly negative global environment as seen during the recent crisis.

13: Once again, in order to make comparable the exercises, we suppose that the increase in financial tensions is verifiable since last June.

Box 3. BBVA Global Trade Index (BBVA-GTI)[14]

At times of great uncertainty, having the most up-to-date information on the changes in the economy becomes paramount. The unexpected collapse of world trade in the end of 2008 and in early 2009 came as a huge economic shock. It clearly underlined the need for new tools to monitor economic developments in high frequency. In particular, to better monitor and forecast global trade flows.[15] **Trade data face important delays in their publication, making it extremely difficult to track the evolution in real time.** So, for instance, preliminary monthly data from the CPB (Netherlands Bureau for Economic Policy Analysis) on world trade of merchandise is available with a lag of close two months. However, as far as growing attention is claimed by world trade of services (travel, transportation, insurance, financial services, and so on), it comes as no surprise that **we focus our attention on world trade in goods and also services published by the Organization for Economic Co-operation and Development (OECD)** (Chart 19). Such series is published only on a quarterly basis and first estimates are released about one quarter after the end of the quarter, reflecting late publication of national accounts breakdown in some countries.[16] Taking everything into consideration, the size and volatility of cyclical movements in recent years have once again raised the issue for the need to develop tools that will define the state of the economy in real time.

Chart 19
Observed world trade of goods and services growth (%, q/q)

Source: OECD

Chart 20
Observed world trade of goods and services growth (%,q/q) and US BofA Merrill Lynch High Yield Spread (%)

— World trade
— US High Yield Spread (right and inverted axis)

Source: BBVA Research

BBVA Global Trade Index (BBVA-GTI) is a monthly index designed to gauge overall trade of goods and services. It is based on the notion that co-movements among economic variables are reflecting an underlying common factor which represents global trade cycle dynamics, a non-observed latent variable. As such, BBVA-GTI has been built upon a single-index dynamic factor model framework to produce high-frequency measurement of the global trade in a systematic, replicable, and statistically optimal manner from **merchandise exports (CPB), global industrial production, world retail sales, global purchasing manager's index** (PMI) and global new export orders index. Our extension of Aruoba and Diebold (2010) allows us to examine the information content of additional real trade data and survey indexes to produce accurate short-term forecasts of global trade growth.[17]

14: This box summarizes those results of our forthcoming Economic Watch (Martínez-Martín, 2013).
15: The collapse was caused by the sudden, severe and globally synchronised postponement of purchases, especially of durable consumer and investment goods (and their parts and components) On the world trade collapse and the debate on whether world trade was just a victim of the crisis or contributed importantly to it see for instance Baldwin (2009).
16: World trade is calculated as the average of world imports and exports of goods and services in volume of 2005.
17: See methodological section for further details.

According to World Trade Organization (WTO) figures, between 80 to 90 per cent of world trade relies on trade finance (trade credit and insurance/guarantees), mostly of a short-term nature. As a result, further extensions to examine the extent to which its accuracy might be improved with trade finance indicators are to be tackled. Accordingly, we have to take into consideration an indicator of the risk premium paid by risky borrowers which would capture both the global impact of credit conditions on activity as well as via global trade finance conditions. The quite high communality associated with world trade and its high countercyclical movement's make the US high yield spread[19] an excellent potential proxy to be examined (Chart 2).

Evaluation and preliminary results of BBVA-GTI

The correlation of global trade growth with respect to BBVA-GTI is higher than 0.8, indicating the high potential of the indicators used to capture global trade cycle turning points.[20] As a result, it allows us to produce short-term forecasts of global trade growth.

In brief, our preliminary empirical results are summarized as follows; global trade growth **backcast estimate for the second quarter has been slightly revised upwards (from 1.0% to 1.3%, q/q) while for the third quarter estimate from three months ago has improved at around 1.4%** (q/q) (Chart 21 and Chart 22).

All in all, we consider that our **BBVA-GTI is a valid tool to be used for short-term analysis on world trade of goods and services.** Yet, we also consider that the work begun here could be further extended to examine the extent to which the single-factor dynamic factor model accuracy might be improved by including trade finance indicators along with leading indicators.

Chart 21
World trade of goods and services growth (%, q/q) and forecasts based on BBVA-GTI

Source: BBVA Research and OECD

Chart 22
World trade of goods and services growth (%,q/q) and forecasts based on BBVA-GTI
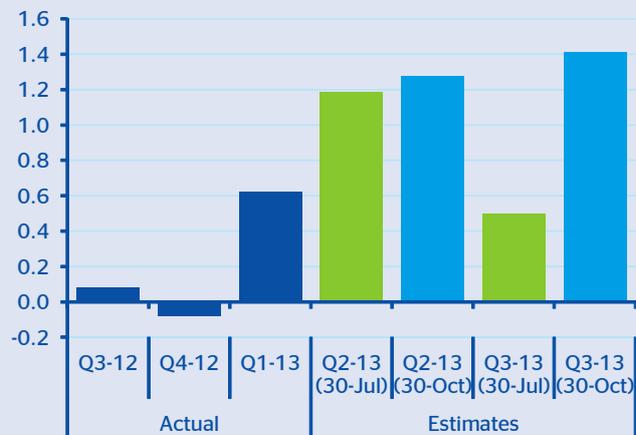
Source: BBVA Research

19: BofA Merrill Lynch US High Yield Master II Option-Adjusted Spread (BAMLH0A0HYM2), Percent, Monthly, Not Seasonally Adjusted.
20: When using this index, trend direction is the most important element – not necessarily the value when the index is above/below a certain figure.

Methodological description

Accordingly, **BBVA-GTI comprises several high-frequency economic indicators that share a common cycle** component and exhibit high statistical correlation with the global trade growth rate. In addition to the correlation criteria, those indicators should use the published data each quarter before the corresponding world trade figure becomes available, and they must be relevant in the model from both a theoretical and empirical point of view. Thus the evolution of each of the indicators i for the period t, z_t^i can be broken down into the sum of two stochastic unobservable components. The first component, x_t, usually called "common factor", includes the combined dynamics of all the indicators and can be identified with the global trade cycle. The second component, u_t^i, known as the idiosyncratic component, refers to the particular dynamics of indicator i during period t.

$$z_t^i = \beta_i\, x_t + u_t^i$$

The movement of the common and idiosyncratic components is established by autoregressive models of order p and q.

$$x_t = \rho_1 x_{t-1} + \ldots + \rho_p x_{t-p} + e_t$$

$$u_t^i = d_1^i\, u_{t-1}^i + \ldots + d_q^i\, u_{t-q}^i + \varepsilon_t^i$$

In this case, e_t and ε_t^i are non-observable error terms that are assumed to be independent and not serially correlated. Mariano and Murasawa (2003) propose that if we consider the quarterly series as the weighted sum of its monthly expressions, the above-specified model might be represented in state-space form and eventually estimated, by maximum likelihood using Kalman filtering.

The methodology used is in line with the seminal proposal of Stock and Watson (1991), since we use a small-scale single-index dynamic factor model to produce an accurate index of global trade conditions in real time. As in the Stock-Watson proposal, the model benefits from the information provided by several monthly coincident indicators. In addition, we use the approach proposed by Aruoba and Diebold (2010) on how to adjust a factor model to handle the different start and finish dates of the indicators, as they are typically available in real-time forecasting due to differing release timeliness. In short, we believe that such

an extension is extremely useful to deal with monthly and quarterly indicators, which allow us to include quarterly estimation of global trade of goods and services as an additional coincident indicator to the constituent set of indicators.

Chart 23
BBVA-GTI and World Trade of goods and services (%, q/q) in monthly basis (Updated @ 30 Oct, 2013). Shading corresponds with forecasts

Source: BBVA Research

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Baldwin, R. (2009), "The Great Trade Collapse: Causes, Consequences and Prospects", VoxEU.org.

Mariano, R., and Murasawa, Y. 2003. A new coincident index of business cycles based on monthly and quarterly series. *Journal of Applied Econometrics* 18: 427-443.

Stock, J., and Watson, M. 1991. A probability model of the coincident economic indicators. In Kajal Lahiri and Geoffrey Moore editors, Leading economic indicators, new approaches and forecasting records. *Cambridge University Press,* Cambridge.

3. An overview of the global process of leverage

1. Leverage and economic growth: a multidimensional relationship

The increasing level of leverage in most economies, particularly the most advanced, during the decade before the crisis **has often been put forward as an argument from two different points of view: as a cause of the crisis and a condition for recovery.** Most analysts accept that given the *high and unsustainable* levels of debt[20] during the expansionary period, it is *necessary* to start a process of deleveraging to meet more sustainable levels. Moreover, the need for deleveraging to achieve greater economic growth is related to two alternative but not exclusive arguments. The first point is that part of the major increase in debt in the decade of expansion before the start of the 2008 crisis was the result of abundant liquidity of the kind that does not appear likely to recur. The second argues that, above all in the economies with the highest debt levels (or at least higher than the average of their peers) and with many other structural problems (as in the case of some of the economies in the European periphery), these significant starting levels of debt will oblige households and companies to allocate a major proportion of their resources to service their debt, thus channeling them from expenditure on consumption and investment. **The economy could therefore only recover to a significant extent once the deleveraging process was at an advanced stage and the debt burden on households and corporates had been sufficiently reduced to leave room for new expenditure.**

At the most aggregate level, data show that in principle there is a clear relationship between **economic development** (the real GDP level) **and the weight of debt in the economy** (for example, as measured by the ratio of debt to nominal GDP). Chart 24 shows both these variables in aggregate form for the G7 economies (their median value). A clear relationship can be seen between GDP and the leverage ratio during the last three decades, which is not broken (partially) until the mid-2000s. Debt began to increase faster than GDP in 2005. This process lasted at aggregate level until 2011, although the growth in debt began to moderate in 2009. **After the outbreak of the crisis, the speed of debt growth gave rise to concerns about its high levels in some countries (Chart 25) and its sustainability, as it had exceeded equilibrium levels, or at least all-time highs.**

20: Unless otherwise specified, the analysis in this section covers the private non-financial sectors of the economy; i.e. it specifically excludes sustainability analysis of the public debt and the debt of the financial sector, where the dynamics are different from the private non-financial sector.

In addition, the term "debt" is used here in the broad sense that is not restricted to bank credit, in accordance with the statistics of the Bank for International Settlements- In section three, dedicated to the U.S. and Spain, the analysis is limited to the credit provided by the banking system.

Finally, the analysis is focused here basically on advanced economies, given that these economies are where the leveraging process has been most notable. The dynamics of debt are very different in advanced and emerging or developing economies, as an economy's level of financial depth is a differential characteristic for the two groups.

Chart 24
G7 economies, GDP and debt to GDP ratio (median)

Total credit to private sector, G7 median, % GDP (LHS)

GDP Level G7, 1980=100 (RHS)
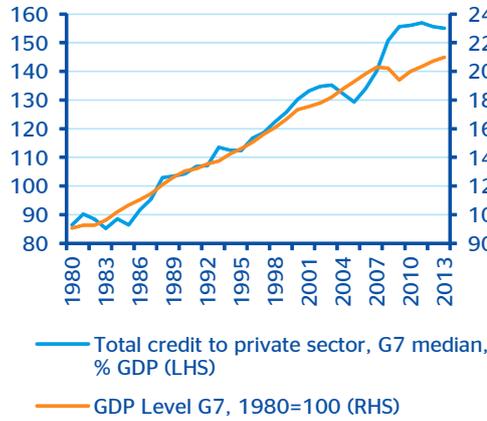
Source: OEDC, BIS and BBVA Research

Chart 25
Degree of leverage: debt to GDP ratio (selected countries)*

■ Dec -08   ■ Lasta data
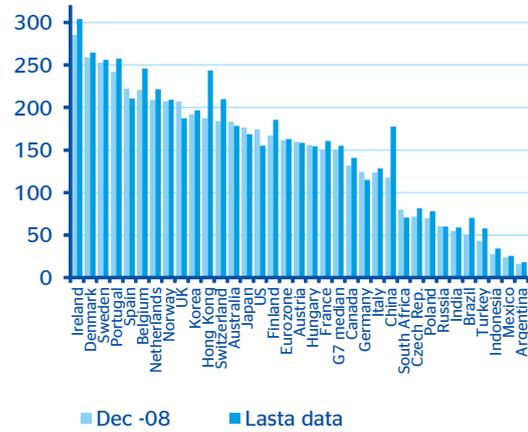
Some economies register a high in their leverage between the end of 2008 and the latest available data
Source: OEDC and BIS

Then, a period of deleveraging appeared inevitable, forced by both supply and demand factors. On the supply side, the previous expansion period had been characterized by conditions of abundant liquidity that were clearly not going to return in the new post-Lehman era. The current period is featured by a "re-regulatory" process of the financial system (adaptation to the new Basel III regulations among other issues), a period where provision of funding may be less abundant or made under less favorable conditions. To this has to be added the process of bank restructuring that is taking place in some countries and the greater risk aversion of the financial institutions. To these supply factors have to be added others on the demand side. Some countries (for example Spain) have had to deal with a deep recession and a restructuring of their productive model, which will make it difficult for demand for credit to return to some of the sectors that were most buoyant during the previous expansion period. However, although in the decade of expansion prior to the crisis most advanced economies responded in a fairly similar fashion (more GDP was equivalent to more debt), **in the five post-crisis years the relationship between debt and GDP has been very different, so it is difficult to extract a general conclusion in this respect,** as can be seen in Chart 26.

Chart 26
Change in the leverage ratio and GDP since 4Q08
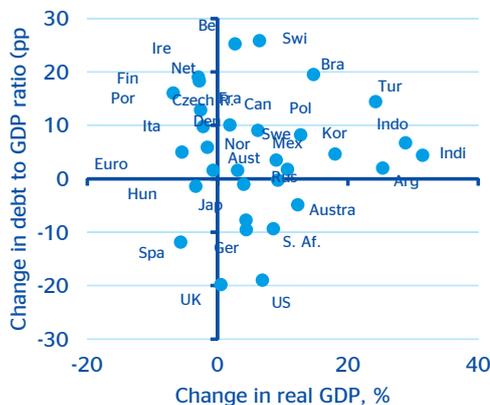
Source: OEDC, BIS and BBVA Research

Chart 27
Debt and GDP in Sweden

Credit/GDP, % (LHS)   GDP (RHS)
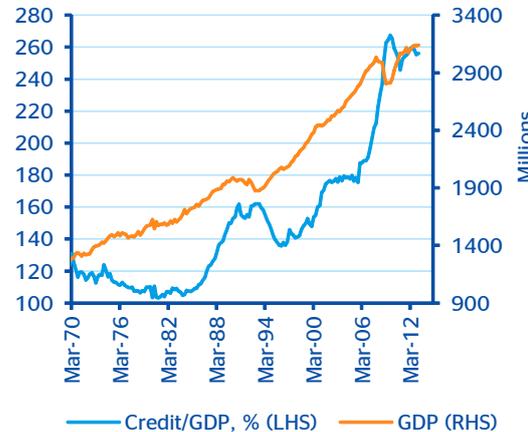
Source: OEDC, BIS and BBVA Research

First of all, **for the majority of economies included in this analysis[21] increases in leverage ratios did not prevent GDP levels from being higher than in 2008** (upper right-hand section of Chart 26). Most of these economies are emerging markets, but advanced economies such as Belgium, France and Sweden are also included. The case of Sweden is particularly illustrative in this respect (see Chart 27). It is an economy that suffered its own banking crisis in the 1990s (with some features that are shared by the global crisis of 2008), and after it the level of private-sector debt reached around 160% of GDP. The ratio fell by 25 points of GDP in the deleveraging process that went hand-in-hand with growth; although Sweden is also one of the countries where debt increased quickest in the pre-crisis years.

Currently Sweden is one of the countries with the highest level of private-sector debt in the world (in fourth place in our sample of 35 countries). In fact, despite the more recent reduction, it continues at above pre-crisis levels. Even so, in 2012 its GDP grew by 1.3% (compared with a fall of 0.5% in the Eurozone as a whole), although in 2013 growth has only just remained positive.

Another substantial group would be made up of the economies that have been able to combine economic growth with deleveraging (bottom right-hand section of the chart). Germany (Chart 28) and the United States are good examples of this situation. Next there are economies where there has been a process of deleveraging, but where post-recession economic growth or recovery has not kicked in. Spain is the most representative case here (Chart 29).

Chart 28
Debt and GDP in Germany
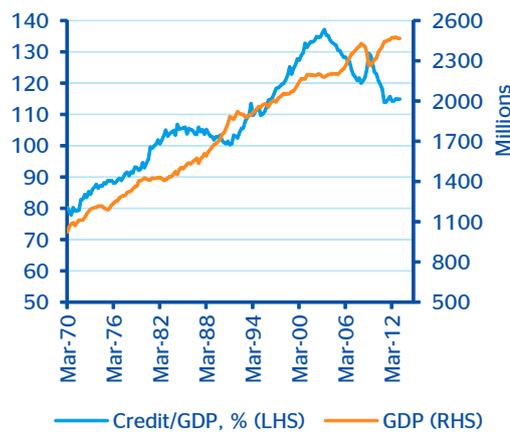
Source: OEDC, BIS and BBVA Research

Chart 29
Debt and GDP in Spain
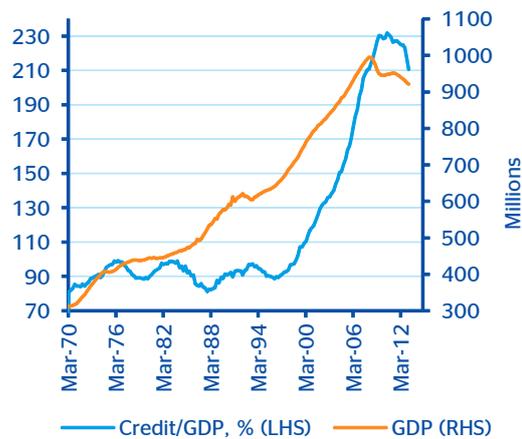
Source: OEDC, BIS and BBVA Research

Finally there is a large group of economies that combine increases in debt with falls in economic activity (top left-hand section). This group is made up basically of European countries, but it is very varied (Nordic, central European and peripheral). For our purposes, of note is the presence in this group of peripheral European economies such as Portugal, Ireland and Italy, as a contrast with the Spanish economy, where the level of debt has fallen significantly.

Thus a **simple comparison of GDP and debt in the private sector is not enough to obtain a one-to-one relationship between deleveraging and growth. This relationship must therefore be dependent on other variables not considered so far,** specific to each country, and which could even help identify a level of equilibrium for credit.

21: 35 economies at a different level of development.

2. Mind the gap: estimating the private credit equilibrium. Economic growth, structural and regulatory variables are relevant to determine long term equilibrium level

In the long term there is a positive correlation between financial development, measured by the private credit-to-GDP ratio, and the level of income per capita of a given country. Same time, the recent global financial crisis, with very different evolution of credit ratios and economic growth, has reminded us of the necessity of having a measure of whether the current level of credit in a country is excessive or sustainable. This assessment allow us to know whether the feasibility of maintain income growth and credit-to-GDP ratio around current levels is high or is low, giving some clues about a future economic and/or financial crisis.

We propose an empirical panel data methodology[22] based on the idea that the long-run relationship between the private credit-to-GDP ratio and income per capita follows a logistic (s-shaped) type of relationship, with a saturation level at the highest levels of income. **The saturation levels and the shape of the relationship between financial deepening and income depend also on a large set of institutional and regulatory determinants.** Additionally, the observed level of the credit ratio could deviate from its long-term structural level due to the effect of mid-term and short-term deviations of income, investment, interest rates and the other variables of the model. **This kind of deviations could induce the appearance of credit booms or busts, which we call country's "credit gap".**

Alternative ways to estimate credit gaps

Among the commonly used indicators of an excessive credit growth is the change in the credit-to-GDP ratio or estimating credit gaps as the difference of the credit-to-GDP ratio from its own trend.

Analysts and international institutions who opt for the former usually consider that if such ratio grows more than 5 points in a year, the country is going through a credit boom. But, is it equally risky that the ratio grows 5 points in an emerging country with an initial ratio of 20 that if it does in an advanced economy with an initial ratio of 200? How do we compare such annual change in credit ratio if the GDP is growing at a 5% rate in the emerging economy but is only growing at a 2% rate in the advanced economy? How do we account for the effect of a recent regulatory change that favours financial development?

Estimating credit gaps as the difference of credit-to-GDP from trend have also some problems. The gap can be very different depending on the technique to estimate the long-run trend. Besides, credit gaps can also be different depending on whether the trend is linear or stochastic (normally a Hodrick-Prescott filter which is subject to end point bias).

Chart 30
Goumpertz Curve (Non Linear Approach)
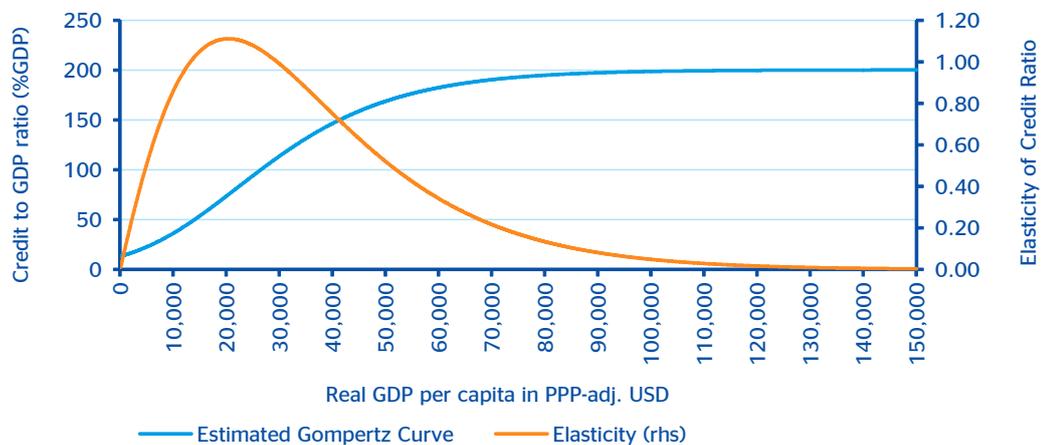
Estimated Gompertz Curve — Elasticity (rhs)

Source: BBVA Research

We can summarize the main advantages of our methodology with respect the alternative ways to estimate credit gaps in the following three assumptions: i) we assume a more realistic type of relationship between the credit ratio and income per capita (Gompertz-curve, chart 30); ii) we allow for different sensitivities to independent variables of the model (macroeconomic, structural and regulatory variables) depending on the time horizon.

We apply this methodology to a large panel of 83 countries between 1990 and 2012. We control for 13 structural and regulatory variables (Table 3).

Table 3
Long Run Determinants (Financial Deepening Variables)

Macroeconomic	Structural Variables	Regulatory
GDP per capita	Population density	Credit Bureau, quality of Information
GDP pc x Investment Ratio	Rule of Law	Private Bureau Coverage
Investment to GDP Ratio	Gini Coefficient (inequality)	Public Registry Coverage
Inflation	Financial Openness	Strength of Creditors' Protection
Real Interest Rate (ST)	Banking Concentration	PCA Cost of Enforcing Contracts, Registering Property
Banks Real Spread	Regulatory Capital to Assets Ratio	PCA Restrictions to Banking Activity
	Capital Requirements	PCA Restrictions to Entry in Banking sector

Source: BBVA Research

It is worth noting that we allow for different sensitivities of the credit ratio to the other variables depending on the time-horizon component (long, medium and short run).[23]

Through our methodology, **we find clear evidence in support of a Gompertz-curve kind of relationship and in favour of different sensitivities to income per capita depending on the time-horizon that is considered.** First, **long-term increases of income have a positive effect on the credit ratio but with an upper-limit;** second, mid-term deviations seem to be the main drivers of credit booms; and finally, short-term deviations have a negative impact on the credit ratio. This is quite important in terms of determining what the structural level of financial development is, i.e. what level of credit is supported by the fundamental values of an economy and to determine what levels of the credit ratio should be considered "excessive".[24]

The different sensitivities allow us to estimate a "structural" level of the credit ratio related to the long-term components of the independent variables and to the saturation level determined by the institutional framework of each country. Then, the main results of the model are:

i.   There are significant and negative effects from informality but not significant effects from inequality.

ii. Financial openness is positive related with credit to GDP.

iii. Higher capital requirements have a strong negative effect on financial deepening, and

iv. Restriction on the entry of new participants and higher concentration appears to have a negative effect on financial deepening. A higher availability and quality of information have a clear positive sign on financial deepening.

v.   The combination of higher creditors' protection, easier enforcing of contracts and an easier process of registering property has a clear positive effect on credit.

23: All in all, we consider a long-term value of a variable equal to its 15-year moving average; mid-term deviation is the gap between 5-years moving average and long-term value; and, finally, short-term deviation is the gap between the value and the 5-years moving average. Additionally, to lead with multicollinearity problems between GDP pc and other variables we use Principal Components Analysis (PCA) and residual to regressions.

24: For instance, some recent studies try to estimate the "benchmark" level of financial development as the level determined by income per capita and other variables. However, if the sensitivity of the credit ratio to changes in income per capita was higher in the medium or short term than in the long term, we would estimate a much higher structural level if the economy was going through a temporary period of strong growth, even though a temporary increase in income should not warrant a higher level of credit. For instance, this would be the case of an economy going through a bubble experience

The estimated "credit gap" appears to be a predictor of banking crises and, moreover, its performance is as good as (or even superior) to the most commonly used indicators to measure credit booms such as the annual change in the credit-to-GDP ratio and the deviation of the credit-to-GDP ratio from its own trend (either linear or stochastic). As a illustration, the following graphs show the size of the credit gaps (deviation of credit-to-GDP ratios from equilibrium) during the Nordic banking crisis (1991), the emerging market crisis (1997), the last financial crisis (2007) and the current situation (2013).

The excess credit growth during the Nordic Banking Crisis (1991) was concentrated mostly in developed countries such as Sweden, Finland and Denmark but also in Canada and Japan. There were also some significant credit pressures in Brazil and to a lesser extent in Chile (Chart 31). This contrasts with the situation previous to the emerging market (EMs) crisis (1997) where most of the sizeable credit gaps (represented by darker blue colours) were concentrated in the EMs. This was particularly relevant in Asia and Latin America, with only a few countries in emerging Europe showing excess of credit (partly due to very low starting levels after the Communism fall). In contrast, just a small number of developed countries were showing excess credit growth as Japan and Sweden, both countries facing a long lasting de-leveraging process (Chart 32.

Chart 31
Credit Gap Map (1991)
(deviation of Credit- to-GDP from equilibrium, pp)

- ☐ Credit Gap<6.5
- ☐ 6.5<Credit Gap<10
- ☐ 10<Credit Gap<15
- ☐ 15<Credit Gap<25
- ☐ Credit Gap>25
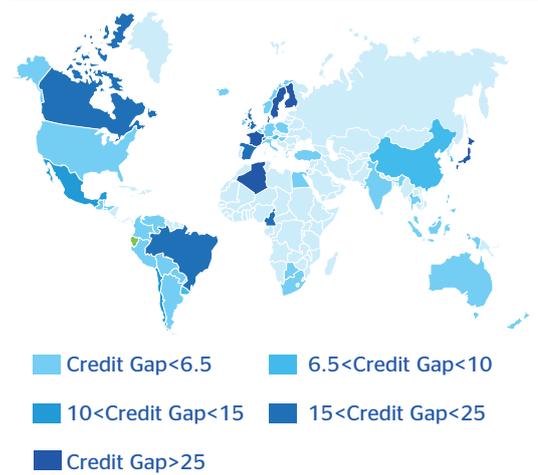
Source: BBVA Research

Chart 32
Credit Gap Map (1997)
(deviation of Credit- to-GDP from equilibrium, pp)

- ☐ Credit Gap<6.5
- ☐ 6.5<Credit Gap<10
- ☐ 10<Credit Gap<15
- ☐ 15<Credit Gap<25
- ☐ Credit Gap>25
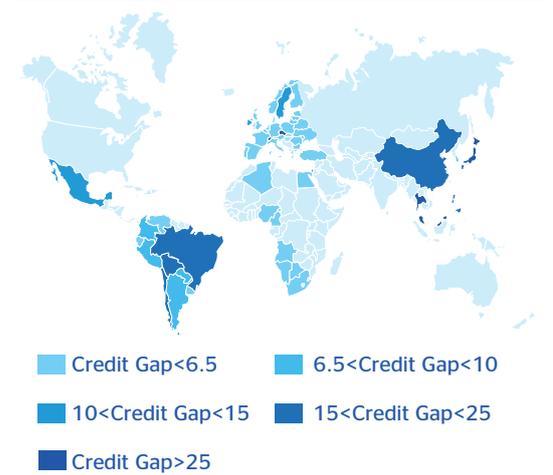
Source: BBVA Research

The private-credit map of 2007 (previous to the latest financial crisis) shows most of the developed countries concentrating the credit vulnerability. In this case, the USA, the periphery of Europe and Australia and New Zealand concentrated most of the pressure. Emerging Europe was the only region where excess private credit was somehow general while the rest of the EMs were isolated from the ensuing private credit slumps (Chart 33).The actual credit map (2013) shows how **the US or Spain have advanced in the deleveraging process and the blue colours have become more neutral.** However, in some of the EU peripheral countries (still in dark blue) the de-leveraging process is still on going. **One emerging signal is the increasing credit pressures in some EMs in Asia, China and India.**

Chart 33
Credit Gap Map (2007)
(deviation of Credit- to-GDP from equilibrium, pp)

Credit Gap<6.5   6.5<Credit Gap<10

10<Credit Gap<15   15<Credit Gap<25
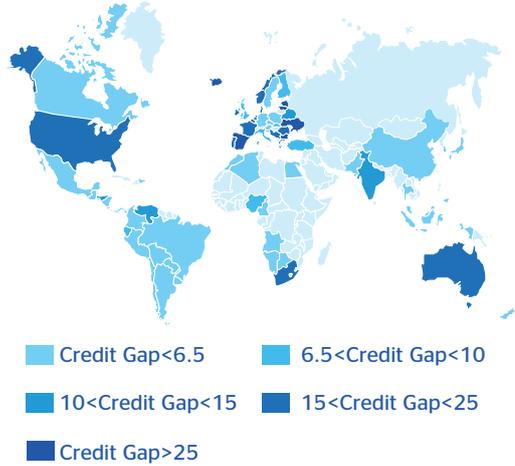
Credit Gap>25

Fuente: BBVA Research y Banco Mundial

Chart 34
Credit Gap Map (2013)
(deviation of Credit- to-GDP from equilibrium, pp)

Credit Gap<6.5   6.5<Credit Gap<10

10<Credit Gap<15   15<Credit Gap<25

Credit Gap>25
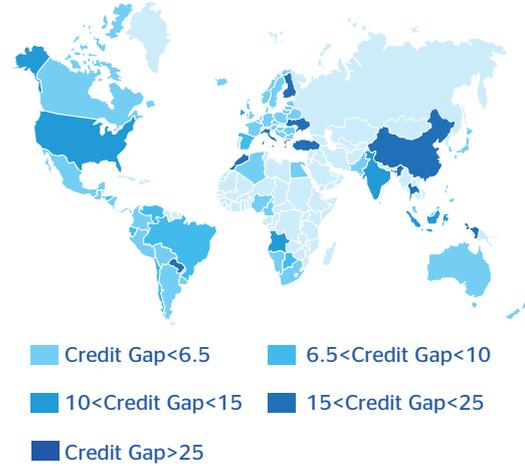
Fuente: BBVA Research y Banco Mundial

3. U.S. and Spain. Different rates of (de)leveraging and different relevant factors

As we saw in the earlier sections of this article, the situation in which the economies are dealing with deleveraging processes are very different, both in terms of the characteristics of the process and the economic environment in which it takes place. To illustrate this we have taken the cases of the U.S. and Spain, which are analyzed in more detail in this section. To make comparison easier, and given that it is much easier for companies in the U.S. to obtain finance through corporate debt issues, the analysis is restricted to bank lending to the private sector, which covers practically all corporate and household finance in Spain.

As can be seen in chart 35, the level of credit was similar in the two countries in around 2000, at about 90% of GDP. However, in the subsequent decade there was a major increase in the Spanish figures to a high of 175%, compared with a more moderate high of 130% in the U.S. The deleveraging process started later in Spain, and today is close to the level of 2006, while the U.S. began to reduce credit earlier and has now reached more moderate levels of around 100% of GDP.

Chart 35
Credit to non-financial companies and households (% GDP)

Source: BBVA Research, based on ECB, FDIC and Eurostat data

To better understand how lending has evolved in the two countries, it is essential to analyze the level of debt of the different economic agents, households and companies.

Real estate lending: the subprime episode in the U.S. and the boom in Spain

In the U.S. the item most responsible for the growth in bank lending during the boom was mortgage lending, and specifically the so-called "subprime" loans. These were mortgage loans with generally very easy conditions for the initial quarters or years, issued by mortgage brokers (banking institutions) to low-income families. These loans were then sold on to traditional banks, and repackaged into asset-backed securities that were sold in good conditions on the international financial markets thanks to favorable credit ratings. In the end, it was difficult for the final holder to value the risk assumed. It could therefore be said that **in the U.S. the factor behind the increase in mortgage lending was the regulation of the financial system, which generated incentives to take risks that in the end resulted excessive.** Currently new lending for homes has still not recovered, mainly due to weak supply. Public policies, frequently focused on protecting consumers, have partially delayed the adjustment, so banks still hold problem loans on their balance sheets and they will have to continue their deleveraging process. Recently some symptoms of improvement in the real estate market have been noted, but not in home purchases.

In Spain the problems were also derived from the real-estate boom, which led to a major increase in lending to constructors and developers (41% of GDP in 2008) and residential mortgage lending (63% of GDP in the same date). However, in this case the factors behind this lending behavior were not only linked to regulation; tax incentives also rewarded home ownership, and increasing competition in the financial system led to growth in the market share of the entities that were most exposed to the real estate, the savings banks, following the elimination of restrictions to their activity. Last but not least, another important factor is the fall in interest rates resulting from the entry into the euro and pro-cyclical lending standards.

Chart 36
U.S.: Outstanding loans by debtor (% GDP)

— Consumer credit to GDP
--- Mortgage to GDP
—·— Corporate credit to GDP
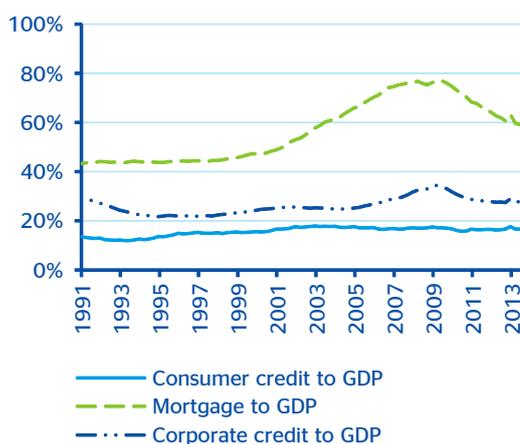
Source: BBVA Research based on FDIC data

Chart 37
Spain: Outstanding loans by debtor (% GDP)

— Consumer credit to GDP
--- Mortgage to GDP
—·— Corporate credit to GDP
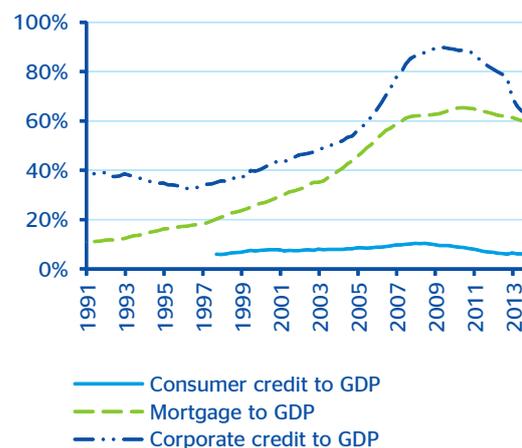
Source: BBVA Research, based on ECB and Eurostat data

The other major part of households credit, consumer lending, increased moderately during the crisis and has already started the road to recovery in both countries. The shorter terms and lower amounts explain why it is an item with less inertia.

No particularly notable behavior has been observed on the corporate lending side in the U.S. during the crisis, as major firms tend to use the corporate debt markets for finance, which makes the sector as a whole less dependent on financial institutions. In general, the biggest companies have already completed their deleveraging process, while the small and medium-

sized enterprises (SMEs) have only done so partly. The economic and regulatory uncertainty is making it more difficult for banks to increase their flow of new lending to the sector.

In the case of Spain, most of the difficulties lie in the loans accumulated by construction and real estate companies. Even today, after six years of crisis, with the new regulations increasing the specific provisions for the sector and the transfer of loans from less solvent banks to a real-estate asset company created by the government (Sareb), companies in the real estate sector have a stock of credit that accounts for 23% of GDP, a high figure considering their situation and outlook in terms of their contribution to the Spanish economy.

In all, for the business sector as a whole the number of new credit operations continues to decline.

Deleveraging: different speed, different causes

Part of the explanation why the reduction in the outstanding balance of credit began before and has been swifter in the U.S. than in Spain lies in the accounting rules, as **the procedure for transition from delinquency to default is quicker in the U.S.** In addition, in some of the American states mortgages are granted without universal liability (or the judge tends to decree this a posteriori). This means that customers with negative equity (a volume of debt higher than the value of the dwelling) may hand over their home to the bank and thus cancel their debt, without the bank having any rights on the rest of the debtor's assets or income. As a result, the outstanding mortgage balance is reduced quicker.

The management of the financial crisis has also been different in the two cases. From the time of the initial turbulence, the U.S. authorities reacted by using monetary, fiscal and specific measures on the financial system, which sped up the stabilization of the economy. In particular, the first stress test on the major banks was carried out in May 2009, while the Spanish exercise with international supervision that managed to convince the markets did not take place until September 2012. In addition, banks that received aid in the U.S. were adequately managed and they could benefit from the economic recovery, which began quickly. **The institutional difficulties in Europe and lack of adequate diagnosis of the crisis in its initial phases has delayed and made more difficult the restructuring of the Spanish financial system.**

What does the future hold for Spain? Forecasts suggest that the deleveraging will continue for the next few quarters. This must be valued positively, given that the current level of roughly 130% of GDP is still very much higher than the average in the Eurozone (90%) and not surprisingly also higher than its long-term equilibrium level. In addition, credit has to be rebalanced by sectors, for example, reducing the share of the real estate sector.

The challenge is to make this deleveraging compatible with the provision of new lending to solvent demand. Specifically, the sectors linked to exports are those that have the biggest potential at the present time, given that demand in this area is improving, just as in previous cyclical recoveries. Overall, in order to boost the flow of new lending operations again it is important to diagnose whether the difficulties on the supply side are caused by lack of liquidity (as occurred during other phases of the crisis) or the risk of applicants (as is the case now). To ease the risks, measures such as guarantees, risk sharing or the reduction of capital consumption could be adequate.

4. Conclusion

Throughout this section we have looked at the changes in debt and growth, showing how preliminary analyses that suggest a direct relationship between the two variables could be simplistic. **Different economies are registering (de)leveraging and (negative) growth in their four possible combinations,** as in fact is observed now when reviewing the behavior of both variables in 35 economies. This is because of the **complex relationship between leverage and growth, which does not involve the two alone, but that also depends on more structural variables** such as changes in the population, informality, investment and the structure of the financial system; as well **as purely regulatory variables,** such as requirements relating to capital adequacy, the quality of the financial reporting or credit bureaus and the level of protection to consumers of financial services.

One example of the importance of the economic environment and the rules of the game as they stand can be found in the performance of bank credit in two economies such as the U.S. and Spain, both in the group of advanced economies. A deleveraging process of bank credit is underway in both, but whereas the U.S. is growing Spain is barely emerging from a deep and lasting recession. Overall, **if the fall in the stock of credit is not to delay economic recovery, it has to take place while new credit operations pick up at the rhythm of solvent credit demand, without being held back by supply factors.**

4. Tables

Table 4
Macroeconomic Forecasts: Gross Domestic Product

(YoY growth rate)	2010	2011	2012	2013	2014
United States	2.5	1.8	2.8	1.6	2.3
Eurozone	1.9	1.6	-0.6	-0.4	1.1
Germany	3.9	3.4	0.9	0.6	1.8
France	1.6	2.0	0.0	0.2	1.2
Italy	1.7	0.6	-2.6	-1.9	0.7
Spain	-0.3	0.4	-1.6	-1.3	0.9
UK	1.7	1.1	0.1	1.4	2.3
Latin America *	6.0	4.0	2.5	2.4	3.1
Mexico	5.1	4.0	3.6	1.2	3.1
Brazil	7.5	2.7	0.9	2.6	2.8
EAGLES **	8.4	6.6	5.0	4.8	5.2
Turkey	9.2	8.5	2.2	3.7	3.6
Asia Pacific	8.2	6.0	5.3	5.2	5.3
Japan	4.7	-0.6	2.0	1.9	1.5
China	10.4	9.3	7.7	7.7	7.6
Asia (exc. China)	6.8	3.6	3.7	3.4	3.6
World	5.1	4.0	3.3	2.9	3.6

* Argentina, Brazil, Chile, Colombia, Mexico, Peru, Venezuela.
** Brazil, China, India, Indonesia, Korea, Mexico, Russia, Taiwan, Turkey.
Forecast closing date: November 4, 2013.
Source: BBVA Research

Table 5
Macroeconomic Forecasts: Inflation (Avg.)

(YoY growth rate)	2010	2011	2012	2013	2014
United States	1.6	3.1	2.1	1.7	2.2
Eurozone	1.6	2.7	2.5	1.5	1.4
Germany	1.2	2.5	2.1	1.7	1.8
France	1.7	2.3	2.2	1.1	1.3
Italy	1.6	2.9	3.3	1.4	1.5
Spain	1.8	3.2	2.4	1.5	1.1
UK	3.3	4.5	2.8	2.7	2.2
Latin America *	7.6	8.0	7.5	8.8	9.4
Mexico	4.2	3.4	4.1	3.8	3.4
Brazil	5.0	6.6	5.4	6.2	5.9
EAGLES **	5.3	6.0	4.2	4.2	4.3
Turkey	8.6	6.2	8.9	7.5	6.4
Asia Pacific	3.7	4.9	3.1	2.9	3.6
Japan	-0.7	-0.3	0.0	0.1	2.0
China	3.3	5.4	2.6	2.8	3.5
Asia (exc. China)	3.9	4.5	3.4	3.0	3.6
World	3.7	5.1	4.1	3.8	4.0

* Argentina, Brazil, Chile, Colombia, Mexico, Peru, Venezuela.
** Brazil, China, India, Indonesia, Korea, Mexico, Russia, Taiwan, Turkey.
Forecast closing date: November 4, 2013.
Source: BBVA Research

Table 6
Macroeconomic Forecasts: Current Account (% GDP)

	2010	2011	2012	2013	2014
United States	-3.1	-3.0	-3.0	-2.5	-2.8
Eurozone	0.0	0.1	1.2	2.1	2.1
Germany	6.0	5.7	7.0	6.5	5.6
France	-1.6	-2.0	-2.3	-1.6	-1.7
Italy	-3.5	-3.1	-0.7	0.1	0.2
Spain	-4.5	-3.8	-1.1	1.2	1.8
UK	-3.9	-1.6	-4.6	-3.0	-2.8
Latin America *	-0.7	-0.9	-1.6	-2.3	-2.1
Mexico	-0.2	-0.9	-1.2	-1.3	-1.4
Brazil	-2.2	-2.1	-2.4	-3.5	-3.1
EAGLES **	1.6	0.5	0.3	0.1	0.4
Turkey	-6.4	-9.9	-5.9	-6.8	-6.6
Asia Pacific	3.3	1.5	0.9	1.0	1.3
Japan	3.7	2.0	1.0	1.2	1.7
China	4.0	1.9	2.3	2.4	2.8
Asia (exc. China)	2.0	1.3	0.0	0.1	0.4

* Argentina, Brazil, Chile, Colombia, Mexico, Peru, Venezuela.
** Brazil, China, India, Indonesia, Korea, Mexico, Russia, Taiwan, Turkey.
Forecast closing date: November 4, 2013.
Source: BBVA Research

Table 7
Macroeconomic Forecasts: Government Deficit (% GDP)

	2010	2011	2012	2013	2014
United States	-8.9	-8.7	-6.8	-4.0	-3.4
EMU	-6.2	-4.1	-3.7	-2.8	-2.4
Germany	-4.1	-0.8	0.2	0.0	0.0
France	-7.1	-5.3	-4.8	-4.1	-3.6
Italy	-4.3	-3.8	-2.8	-3.0	-2.5
Spain *	-9.6	-9.1	-6.8	-6.8	-5.8
UK **	-10.2	-7.8	-6.3	-6.0	-5.9
Latin America ***	-2.5	-2.3	-2.5	-2.6	-2.6
Mexico	-3.4	-2.6	-3.1	-2.4	-2.3
Brasil	-2.5	-2.6	-2.5	-3.2	-3.7
EAGLES ****	-2.5	-1.9	-2.3	-2.2	-2.0
Turkey	-3.6	-1.4	-2.1	-1.2	-2.1
Asia Pacific	-3.6	-3.7	-3.7	-3.7	-3.1
Japan	-9.5	-10.0	-9.5	-10.0	-8.0
China	-2.5	-1.1	-2.1	-2.0	-1.8
Asia (exc. China)	-4.5	-5.4	-4.8	-4.8	-3.9

* Excluding aid to financial sector.
** Fiscal year from 1 April to 31 March.
*** Argentina, Brazil, Chile, Colombia, Mexico, Peru, Venezuela.
**** Brazil, China, India, Indonesia, Korea, Mexico, Russia, Taiwan, Turkey.
Forecast closing date: November 4, 2013.
Source: BBVA Research

Table 8
Macroeconomic Forecasts: 10-year Interest Rates (Avg.)

	2010	2011	2012	2013	2014
United States	3.2	2.8	1.8	2.3	3.2
Eurozone	2.8	2.6	1.6	1.6	2.1

Forecast closing date: November 4, 2013
.Source: BBVA Research

Table 9
Macroeconomic Forecasts: Exchange Rates (Avg.)

US Dollar per national currency	2010	2011	2012	2013	2014
United States (EUR per USD)	0.76	0.72	0.78	0.75	0.77
Eurozone	1.33	1.39	1.29	1.33	1.31
UK	0.65	0.62	0.63	0.64	0.64
Japan (JPY per USD)	87.8	79.7	79.8	97.3	109.9
China (RMB per USD)	6.77	6.46	6.31	6.19	6.02

Forecast closing date: November 4, 2013.
Source: BBVA Research

Table 10
Macroeconomic Forecasts: Official Interest Rates (End period)

	2010	2011	2012	2013	2014
United States	0.25	0.25	0.25	0.25	0.25
Eurozone	1.00	1.00	0.75	0.50	0.50
China	5.81	6.56	5.75	6.00	6.00

Forecast closing date: November 4, 2013.
Source: BBVA Research

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