RESEARCH

Country Risk Quarterly Report

Cross-Country Emerging Markets – May 2012

Summary

Financial Markets & Global Risk Aversion

- **Financial Stress relaxed somehow after the liquidity measures introduced by the ECB (LTRO).** However, the impact has been very different across regions and asset classes. The impact in the US and Emerging Markets (EM) was positive but f**inancial tensions remain high in Europe** specially for Sovereign and Bank CDS. On the positive side, both USA and Europe Ted Spreads reacted positively to the liquidity measures.
- **Capital Flows improved** from the sharp drop of the second half of 2011 **particularly in EM.** Still, inflows to Emerging Europe remained fairly stagnant despite the fact that they were already very low levels last year.

Sovereign Markets & Ratings Update

- **Sovereign CD Swaps continued to widen in Europe,** reflecting that tensions remain well alive. The Nordic countries and Germany continue to act as safe havens while France's situation became somewhat tense. As for EM, sovereign premia increased **in Emerging Europe and remained low and stable in Asia and Latam** (with the exception of Argentina and Venezuela).
- **With the exception of Spain, the rating downgrade cycle relaxed in Western Europe. In EM Markets, rating agencies downgraded some countries in Emerging Europe. In Latam the upgrade momentum has stabilized.**

Our own country risk assessment

- **Our tools and Models for country risk assessment suggest that additional downgrades in Europe could happen**. Among the core countries, France is still vulnerable.
- Emerging European countries continue to be the riskiest ones among EM, Slovenia and Slovakia were recently downgraded by rating agencies, which is in line with our model expectations.
- **There were no significant changes in our Latam risk** outlook. The main vulnerabilities lie on the institutional framework and inflation although with large heterogeneity across countries.
- **In Asia, our models call for an upgrade for Australia and confirm the recent upgrade for Indonesia.** Japan continues to be under pressure.

Summary

Special Topics

- **Not only developed countries but also emerging ones have expanded their Balance Sheet of their Central Banks.**
  - However **the sources of Balance Sheet expansion has been quite different: Net Domestic Assets (NDA) in Developed CBs and mostly Net Foreign assets (NFA) in Emerging Markets.**
  - The risks of balance sheet expansion differ depending on the sources of such expansion.
    1. Future inflation may be a risk for the central banks which have **allowed to translate the expansion of Balance Sheets to the monetary base and are in a more expansionary mode. The money-inflation link is weaker in developed markets and the output gap much larger but some EM Central Banks should maintain a more prudent attitude** towards future inflation.
    2. Other risks are related to asset quality for rapidly expanding NDA, sometimes with dubious assets, and exchange rate and interest rate valuation effects on the NFA side. The first risk is, of course, more true for CBs in developed countries and the second for those in emerging economies.

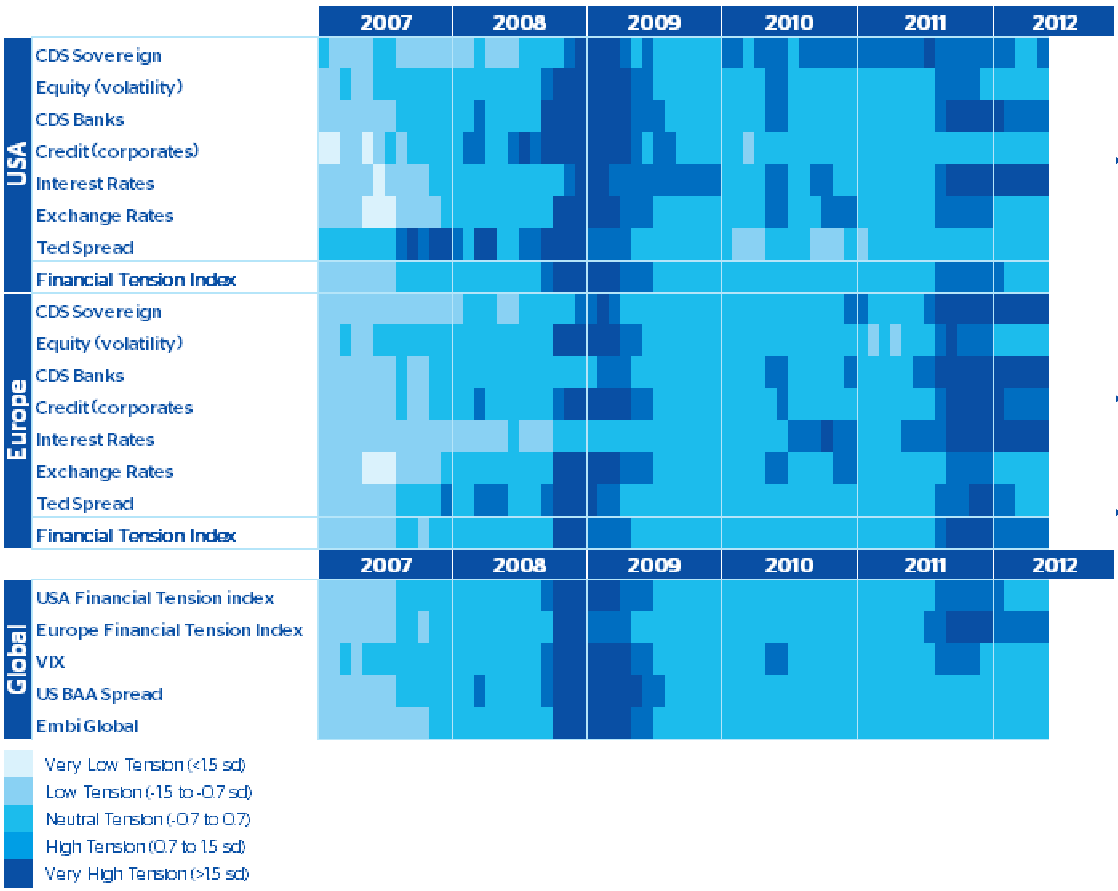
Index

Section 1

Financial Markets Stress & Global Risk Aversion

Financial Stress Map

Source: BBVA



- **Developed Markets Financial Stress relaxed during the first quarter of the year driven by LTRO supporting liquidity measures.** The effects of the liquidity measures were uneven with special positive effects on equity, currency and Ted spreads components and more muted effects on Banks CD Swaps and Sovereign.
- More specifically, sovereign bonds in Europe remained in the high tension area in the 1Q with some worrisome revival at the beginning of 2Q-2012. Credit markets somehow improved but banks CDS remains tense reaffirming the sovereign-banks connection. On the positive side equity response was clearly positive and although still tense, the interbank spreads (Ted Spread) relaxed somehow.
- .**US Financial Stress relaxed but some tensions remain**. Most of the segments went back to neutral although interest rates and Banks CDS remain linked to European volatility
- Emerging Markets have been the most benefitted from Developed Markets Central Bank activism with a relatively better relative performance. The VIX returned to normal levels and both debt and currency markets benefitted by the relaxation in the developed markets during most of the 1Q. Eurozone's problems revival at the beginning of Q2 have triggered new volatility in FX markets.

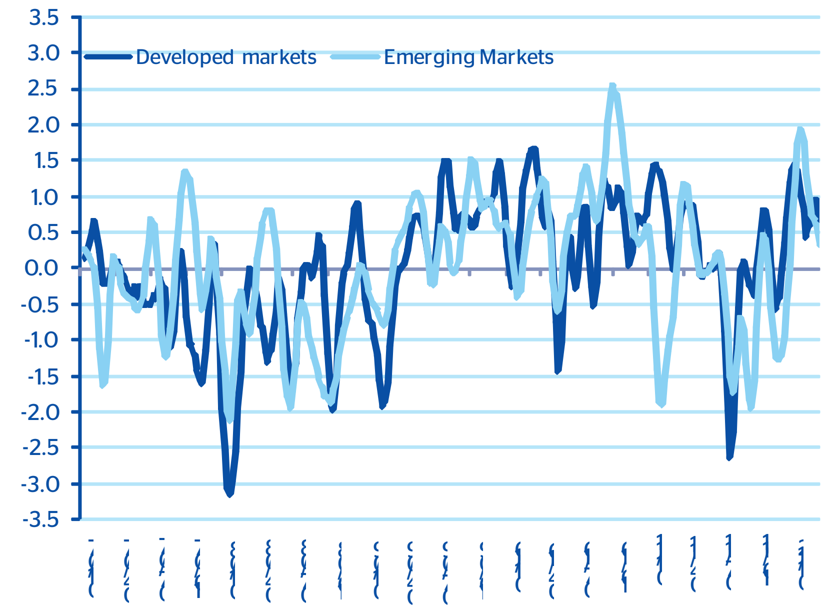
Section 1

Capital Flows Update

Equity & Bonds Net Inflows

(in standardized units over the 2006-2012 period)

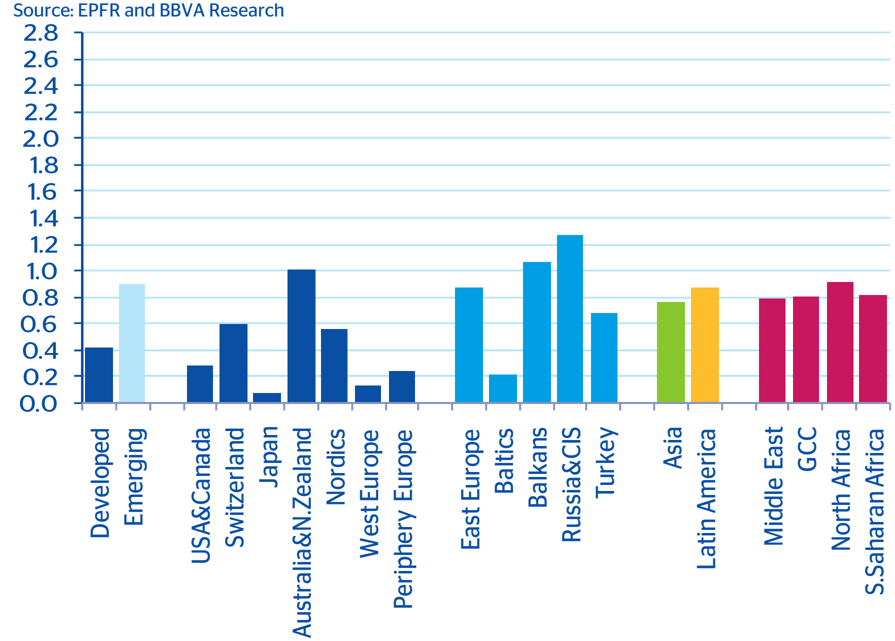
Source: EPFR and BBVA Research



Equity & Bonds Net Inflows Reversal

(change between Oct-Dec 2011 to Jan-April 2012 in standardized units over the 2006-2012)

Source: EPFR and BBVA Research



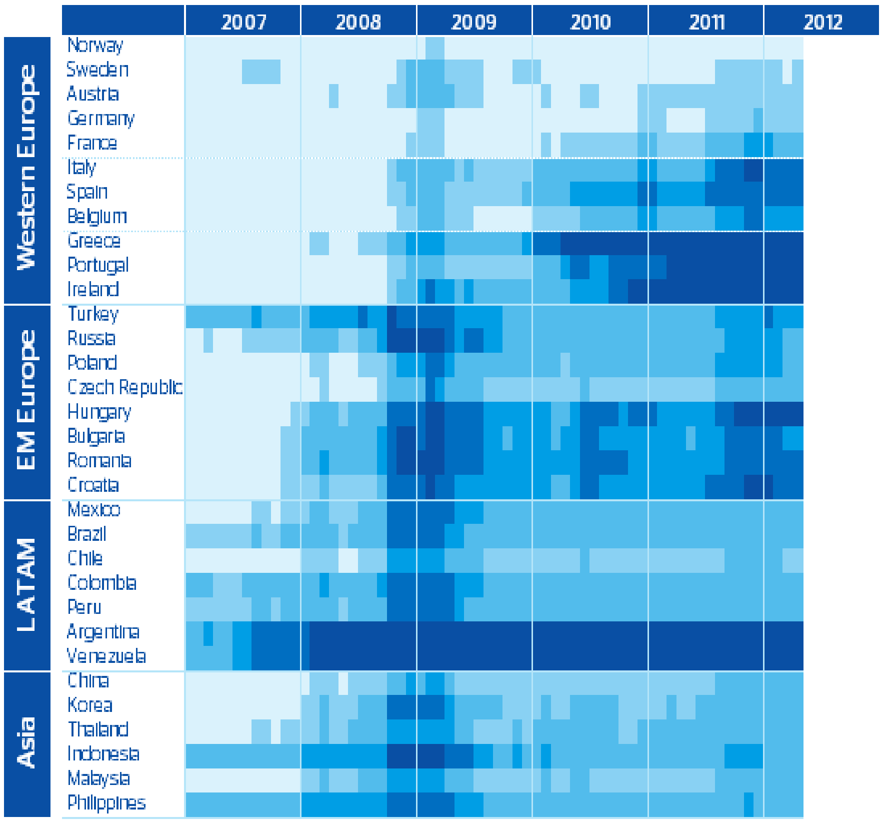
- **Capital Flows (Bond & Equity) picked up sharply during the first quarter of 2012 with EM markets outperforming. Developed markets' capital flows have been uneven. Commodity exporters experience the highest inflows followed by USA**
- **The positive reversal in capital flows towards emerging markets was specially important in EM Europe** with Eastern Europe. The Balkans and Russia benefiting the most followed by Turkey

Section 2

Sovereign Markets Update

Sovereign CDS spreads

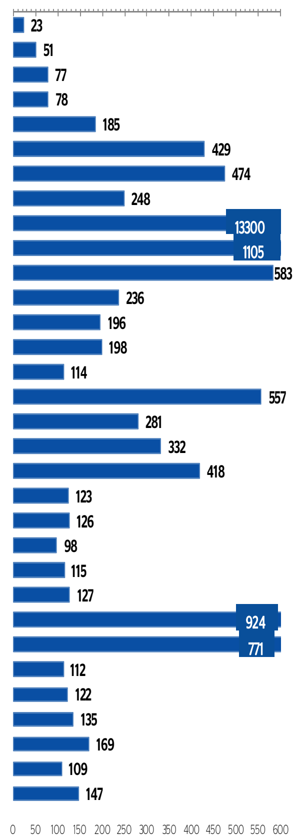
Source: Datastream and BBVA Research



Sovereign CD Swaps Map: It shows a color map with 6 different ranges of CD Swaps quotes (darker >500, 300 to 500, 200 to 300, 100 to 200, 50 to 100 and the lighter below 50 bp)

April 2012

Monthly average



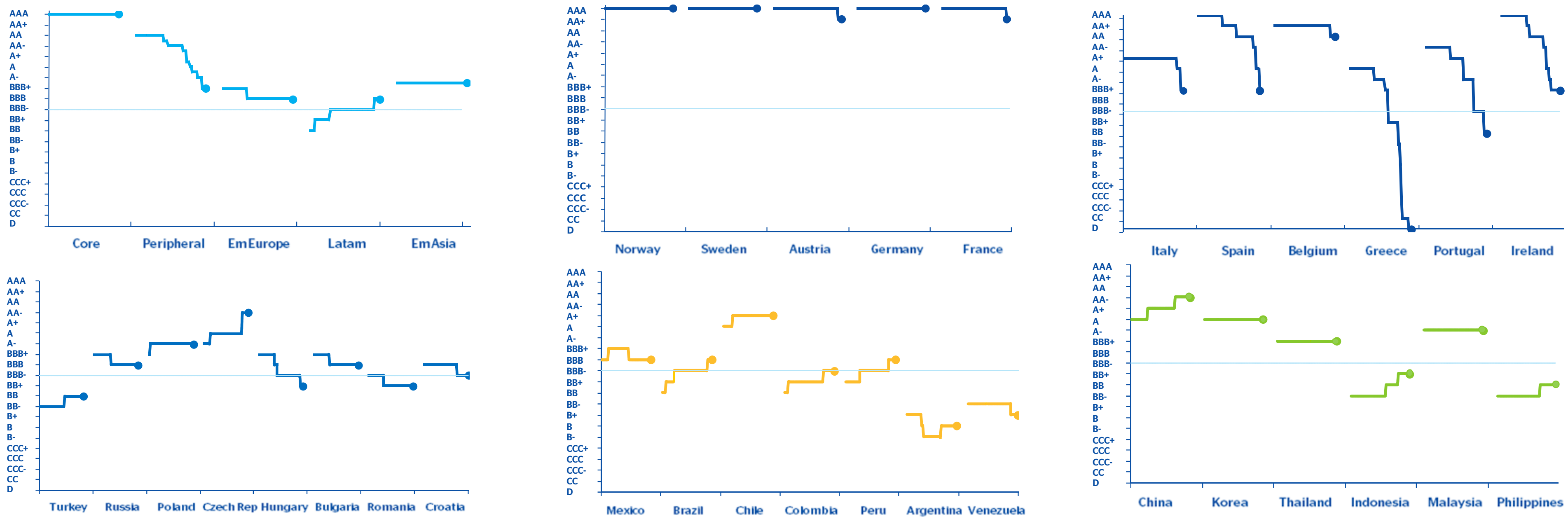
- **Europe's CD Swap spreads continued to widen in a diverging way.** Only Norway remained below 50bp as Austria and Germany finally increased almost reaching 100bp, showing some contagion from EU periphery. In the periphery, Italy and Spain experienced increasing country risk levels. Greece, Portugal and Ireland CD Swaps have remained at critical levels despite bailout programs
- **Some of the Eastern Europe sovereign CD Swaps experienced sharp hikes during 4Q 2011.** Hungary's situation deteriorated very fast driven by economic and political uncertainty. Bulgaria, Romania surpassed the 400 bp mark and Croatia's deterioration is also noteworthy. Turkey, Poland and Russia did relatively better.
- **Latin America sovereign CD Swaps remained at relatively safe levels in the Emerging Markets group**. Chile continued to be the outperformer and Mexico and Brazil stayed near 130 bp. **Argentina and Venezuela remained the outliers in the region** with CDS spreads at very high levels.
- **Asian CDS spreads have experienced some contagion. Still,** China, Korea and Malaysia stayed near 150 pb while Indonesia and Philippines reached 200 bp.

Section 2

Sovereign Credit Ratings Update

Sovereign Rating Index 2007-2012

Source: BBVA Research by using S&P, Moodys and Fitch Data



Sovereign Rating Index: An index that translates the three important rating agencies ratings letters codes (Moody´s, Standard & Poor´s and Fitch) to numerical positions from 20 (AAA) to default (0) . The index shows the average of the three rescaled numerical ratings.

- **Developed Europe**: **The Sovereign Rating downgrade cycle came to a halt after the general downgrades in Europe in January**. However, some of the EU periphery are still under the downgrade cycle (Portugal and Spain). On the positive side some agencies removed the negative outlook for Ireland
- Some Emerging markets have also experienced downgrades since our last report**, in particular** Hungary, Slovakia and Slovenia**. In Asia, Indonesia's** sovereign rating **was upgraded reaching the investment grade category. In Latam the upgrade trend stabilized** with no significant movements during the quarter.

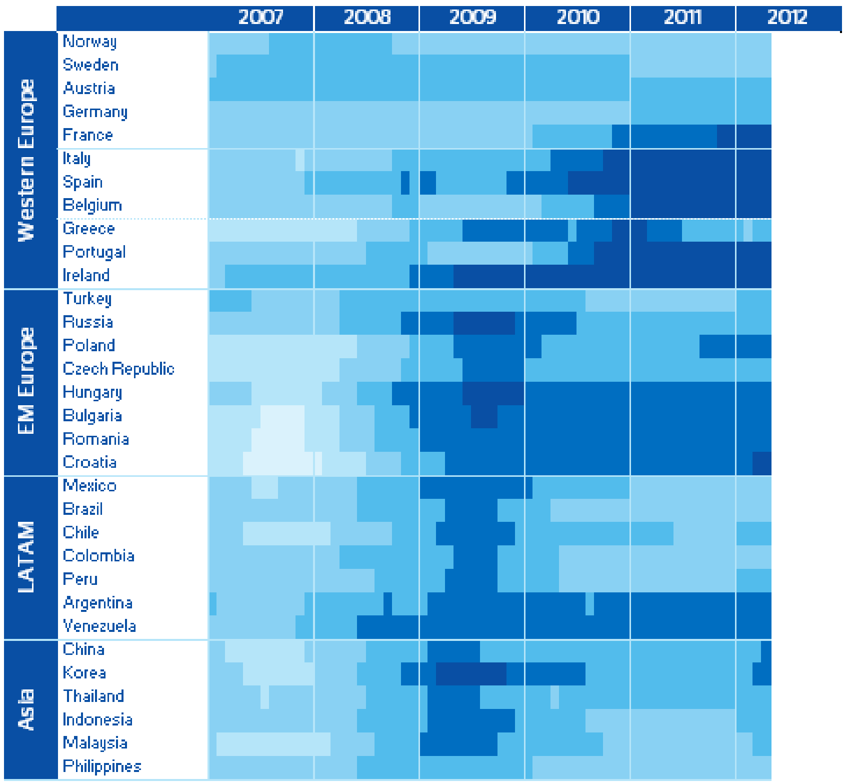
Section 2

Sovereign downgrade Pressures Map

Rating Agencies Downgrade Pressure Map

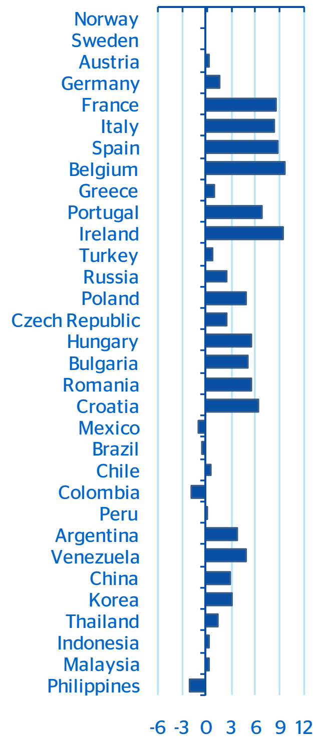
(actual minus CDS-implied sovereign rating, in notches)

Source: BBVA Research



April 2012

End of Month



- **Financial Markets implicit ratings (by Sovereign Credit Default Swaps) continue to reflect a divergent outlook** with the EU periphery (and some core countries as France).
- **The downgrade pressure continued to be intense in the EU periphery** with CD Swaps quoting 6 to 9 notches below the actual ratings. **This pattern is specially intense in Spain, Belgium, Italy and Ireland. Besides, France's** sovereign **rating remains under pressure.**
- **Pressure for downgrades in Emerging Europe is** specially in Hungary and Croatia, less so in Poland. Turkey remain the safest.
- **Latam region remains uneven** with some of the countries discounting a few upgrades of sovereign ratings (in particular for Colombia, Mexico and Brazil) and **Argentina and Venezuela still signaling downgrade pressure**
- **Asia**, remains in the neutral area, although some tensions have appeared in China and Korea. **Philippines continued to signal some upgrade potential,** meanwhile **Indonesia and Malaysia maintain near neutral levels**

Downgrade Pressure Map: The map shows the difference of the current ratings index (numerically scaled from default (0) to AAA (20)) and the implicit ratings according to the Credit Default Swaps. We calculate implicit probabilities of default (PDs) from the observed CDS and the estimated equilibrium spread. For the computation of these PDs we follow a standard methodology as the described in Chan-Lau (2006) and we assume a constant Loss Given Default of 0.6 (Recovery Rate equal to 0.4) for all the countries in the sample. We use the resulting PDs in a cluster analysis to classify each country at every point in time in one of 20 different categories (ratings) to emulate the same 20 categories used by the Rating Agencies..

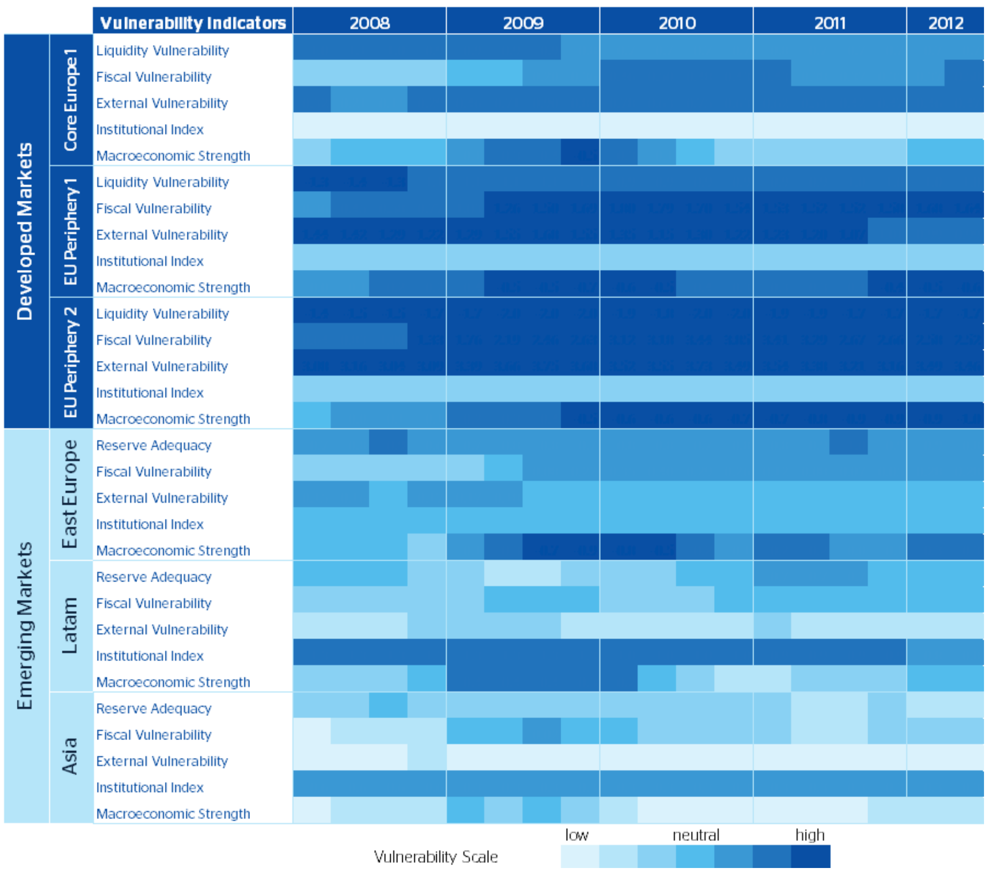
Section 3

World Vulnerability Map

Macroeconomic Vulnerability Map

(scaled through principal components of several vulnerability variables.)

Source: BBVA Research



- **Vulnerability in Europe´s Core Countries (Central Western Europe and the Nordics) remains high relative to historical levels although lower than periphery countries.** There were some deterioration in the fiscal during 2Q-2012 as public debt increased**.**

- **EU Periphery Countries (Belgium, Italy, Spain)** risk continue to be concentrated in the fiscal dimension. Beyond this, liquidity and external risks remain important despite the external adjustment in some of the countries. The macroeconomic vulnerability index stays high as economic activity and unemployment deteriorated..

- **Vulnerability in EU Bailed Out Countries (Greece, Ireland and Portugal) remains extremely high** with liquidity, fiscal and external weaknesses at maximum levels

- **Emerging Europe continued to underperform the rest of EM** countries with the reserve adequacy and macroeconomic dimensions still in negative area..

- **Latinamerica's vulnerability remains relatively low** with most of the components below neutral levels.. The institutional index remain the main drag for the region.

- **Emerging Asia continues to be the less risky area.** Most of vulnerability dimensions remain at neutral or low vulnerability.

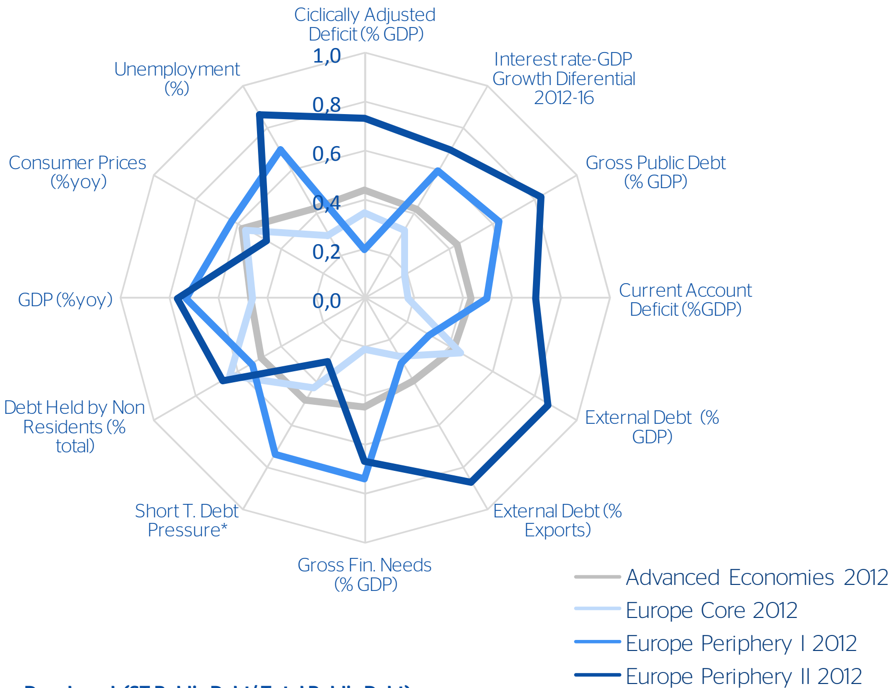
Section 3

Regional Risk Update: Western Europe

West Europe: Vulnerability Radar 2012

((all data for 2012, Relative position for the Developed Economies)

Source: BBVA Research



•Developed: (ST Public Debt/ Total Public Debt)
•Emerging : (Reserves to ST External Debt)
1: High vulnerability
0: Low vulnerability

- **The Western Europe vulnerability position remains high mainly due to EU Periphery countries.** Although core countries position (Nordics and Central Europe) remain below the average of advanced countries, most of **EU periphery vulnerability indicators remains relatively high**, with fiscal sustainability and external positions clearly above the average of advanced countries.
- **Despite the high vulnerability relative to historical levels, the relative position of Europe Core countries (Nordics & Central Europe) remain below the advanced economies (mainly due to even higher risk positions in USA, UK, and Japan).** Fiscal vulnerability is lower than average due to safest debt levels and lower structural budget deficits. External vulnerability is also supportive. France continue to be the exception with external and liquidity vulnerability well above this group.
- **The weaknesses in Europe Periphery I (Belgium, Italy and Spain) remain challenging**. Fiscal consolidation have brought some improvements in the cyclically adjusted deficits. However, both interest rate GDP growth differentials and debt levels remain vulnerable. External vulnerability is in better position than bailed out countries but liquidity is still challenging (high gross financing needs).
- **The weaknesses of Europe Periphery II ("Bailed out countries") continues to be extremely high**, Debt sustainability indicators remain at risk despite improvements in cyclically adjustment deficits and external vulnerability is also high. Short term pressure improved after the bail outs as relatively high Gross financing needs will be covered by official credits. The Greek elections pose immediate risks.

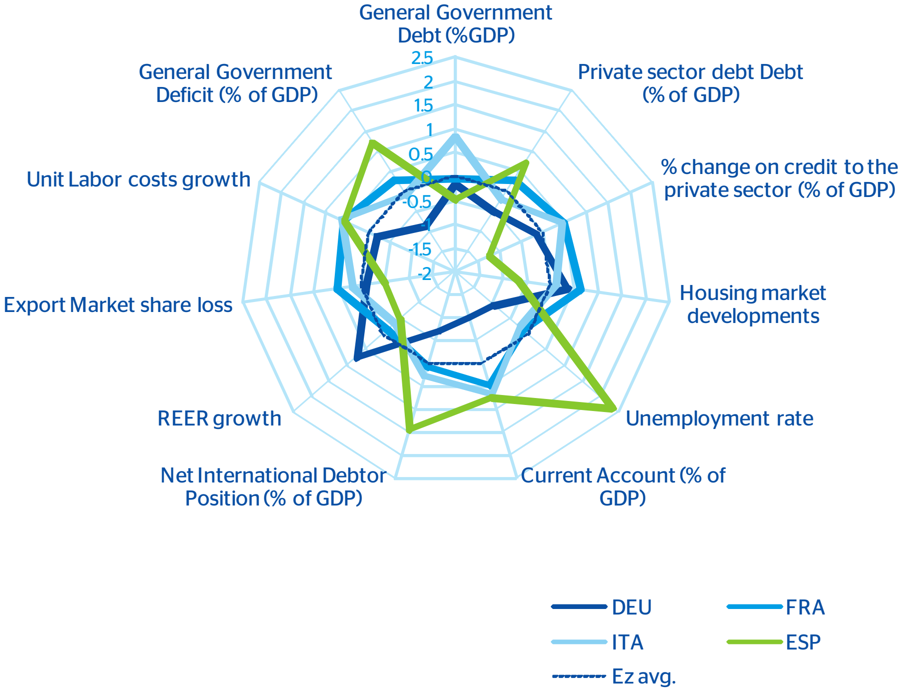
Vulnerability Radar: Shows a static and comparative vulnerability for different countries. For this we assigned several solvency , liquidity and macro variables and we reorder in percentiles from 0 (lower ratio among the countries to 1 maximum vulnerabilities.) Furthermore Inner positions in the radar shows lower vulnerability meanwhile outer positions stands for higher vulnerability.

Section 3

Inside Europe:Alert Imbalances Mechanism (AIM)

Eurozone: Alert Imbalances Mechanism (AIM)

Sources: National sources, ECB, Eurostat, OECD, IFS and BBVA Research
Note: Standard deviation with respect the normalized eurozone average in on the latest available data in 2011 on a quarterly basis



2.5: High vulnerability -1.5: Low vulnerability

The European Commission implemented the Alert Imbalances Mechanism (AIM) for the early detection of imbalances and to help execute the subsequent adjustment. The divergence across European countries for some variables is relatively large, specially those related with the external position and competitiveness.

The scoreboard includes the following indicators:

- **Current account:**

3y average between +6%/-4% of GDP

Spain and Portugal are converging rapidly, while Greece is proving more persistent.

- **International Investment position:**

The threshold is clearly surpassed by the periphery. The adjustment will be slow.

- **External competitiveness:**

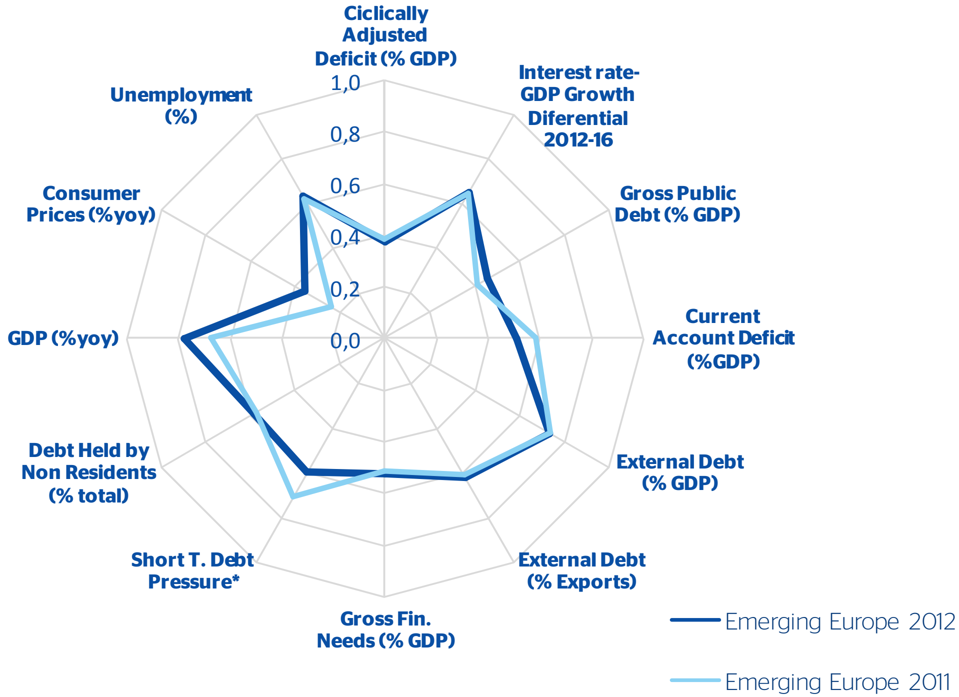
Measured through unit labor costs, export market shares and real effective exchange rates developments. ULC are declining in peripherals.

Section 3

Regional Risk Update: Emerging Europe

Emerging Europe: Vulnerability Radar 2012

(all data for 2012, Relative position for the Emerging Market countries)
Source: BBVA Research



•Developed: (ST Public Debt/ Total Public Debt)
•Emerging : (Reserves to ST External Debt)
1: High vulnerability
0: Low vulnerability

- **The weaknesses of Emerging Europe remain above the average of EM** with some of the countries showing Trade and banking contagion channels from Western Europe.
- **Fiscal vulnerability remains at neutral levels** with cyclically adjusted deficits and public debt levels around emerging market levels, but high vulnerability arising from relatively higher interest rates, GDP growth differential. Fiscal problems are larger in Poland, Hungary and Croatia relative their peers.
- **External sustainability continue to be the main challenge** as external debt levels remain above the EMs' average and current account deficits are challenging in some countries. Except Russia, most of the countries present high external vulnerability problems. In Turkey external debt levels are manageable but the current account deficit is still high.
- **International Reserve adequacy remains poor** relative to the emerging markets which pose some risks if Eurozone Debt crisis deteriorates.
- **Still poor relative economic growth performance and higher unemployment drag the region.** Turkey's economic growth is outstanding but inflation disappoints.

Vulnerability Radar: Shows a static and comparative vulnerability for different countries. For this we assigned several solvency , liquidity and macro variables and we reorder in percentiles from 0 (lower ratio among the countries to 1 maximum vulnerabilities.) Furthermore Inner positions in the radar shows lower vulnerability meanwhile outer positions stands for higher vulnerability.

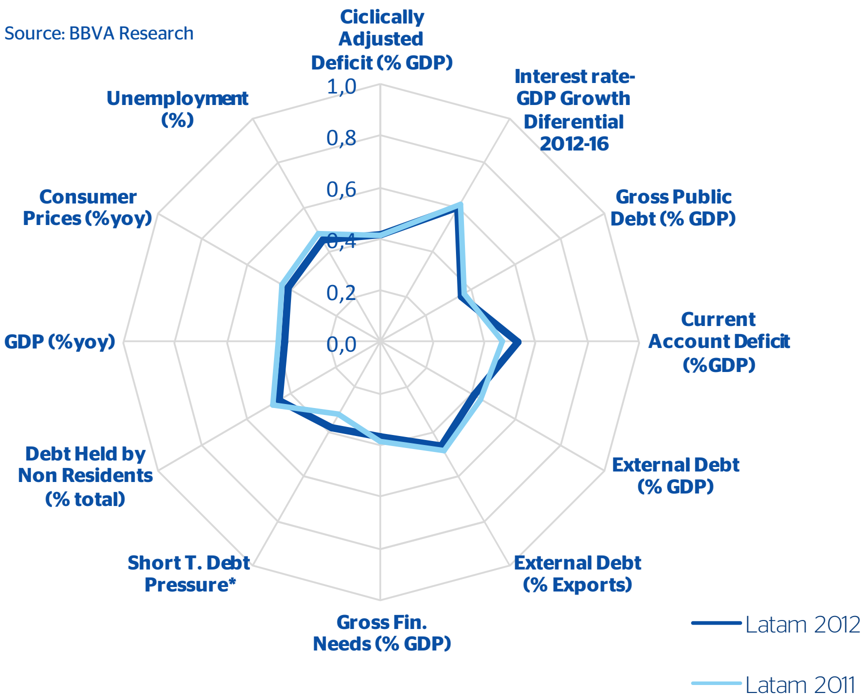
Section 3

Regional Risk Update: Latam

Latam: Vulnerability Radar 2012

(all data for 2012, Relative position for the Emerging Market countries)

Source: BBVA Research



Developed: (ST Public Debt/ Total Public Debt)
Emerging : (Reserves to ST External Debt)
1: High vulnerability
0: Low vulnerability

- **Vulnerability position in Latam stays at relatively sound levels with the main exceptions being Argentina and Venezuela.** The significant improvement of fiscal and external ratios during the last decade provide the region with a much better position to cope with potential crisis episodes
- **Fiscal vulnerability remains** near average EM levels. Both actual and cyclically adjusted fiscal deficits remains at safe area and relatively low public debt ratios support. However, not so high long term growth, and a high real interest rate pose some challenges for public debt dynamics in some of the countries and in particular Brazil. Brazil should, therefore, increase efforts to improve fiscal variables. Finally, Venezuela still remains very vulnerable.
- **External vulnerability is near EM average,** with current account deficits being the only variable EM averages. However, external debt levels (both relative to GDP and exports) provide low levels of vulnerability
- **Liquidity pressures are relatively low.** Reserve adequacy ratios remains in the safest levels and gross financing needs and debt held by non residents stay at relatively low levels. This will provide some cushion in an hypothetical capital flows sudden stop
- **Inflation remains the main source of risk.** I has improved in Brazil but remains very high in Argentina and Venezuela.

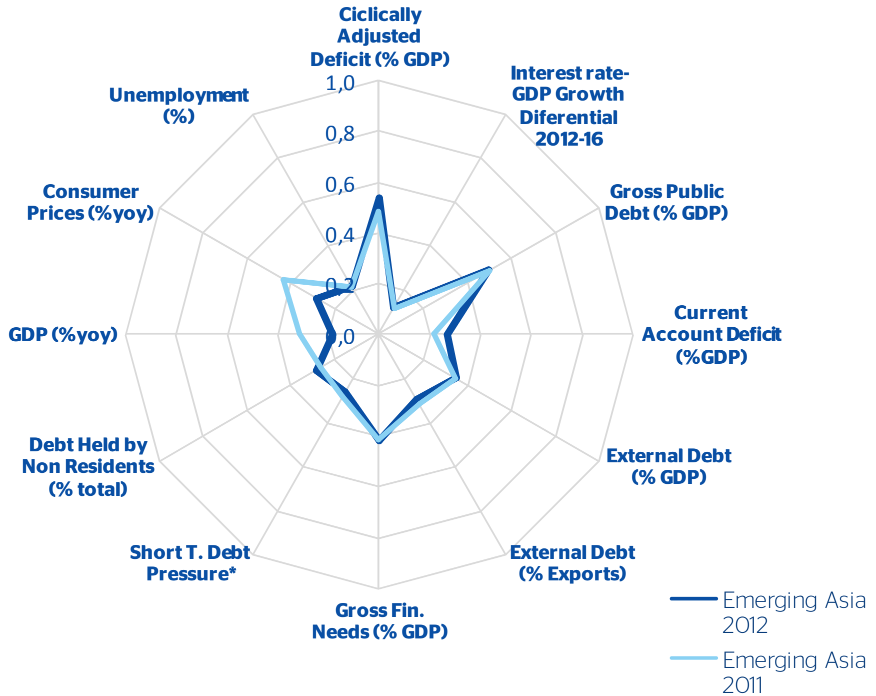
Vulnerability Radar: Shows a static and comparative vulnerability for different countries. For this we assigned several solvency , liquidity and macro variables and we reorder in percentiles from 0 (lower ratio among the countries to 1 maximum vulnerabilities.) Furthermore Inner positions in the radar shows lower vulnerability meanwhile outer positions stands for higher vulnerability.

Section 3

Regional Risk Update: Asia

Emerging Asia: Vulnerability Radar 2012

(all data for 2012, Relative position for the Emerging Market countries)
Source: BBVA Research



1: High vulnerability
0: Low vulnerability

- **Emerging Asia's vulnerability remains the safest among the EM.** This is the result of very low levels of fiscal and external vulnerability and strong reserve adequacy after years of international reserves accumulation. India is still the most vulnerable within the region.
- **A sound fiscal situation remains an asset for the region** with very low fiscal deficits (current and cyclically adjusted) as well as low public debt levels. India is the exception with a relatively high structural deficit.
- **External vulnerability is even lower** with very low levels of current account deficits (or even surplus) and historically low levels of external debt, providing an important buffer for potential capital flow reversals
- **Reserve adequacy ratios remain in the safest levels .** This is particularly the case of reserves in months of import covered but also the external short term debt to reserves ratios. A very strong position in international reserves provides an additional cushion for potential capital flow reversals
- **Economic growth and unemployment stay robust** despite the economic activity deceleration**. Inflation figures have relaxed particularly in China**

Vulnerability Radar: Shows a static and comparative vulnerability for different countries. For this we assigned several solvency , liquidity and macro variables and we reorder in percentiles from 0 (lower ratio among the countries to 1 maximum vulnerabilities.) Furthermore Inner positions in the radar shows lower vulnerability meanwhile outer positions stands for higher vulnerability.

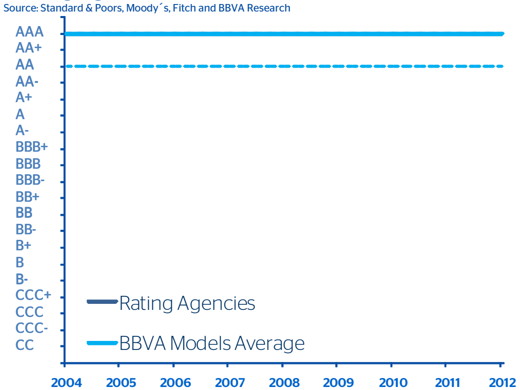
Section 3

Regional Risk Update: Western Europe

Europe Core: Sovereign Rating

(Rating agencies and BBVA scores +-1std dev)

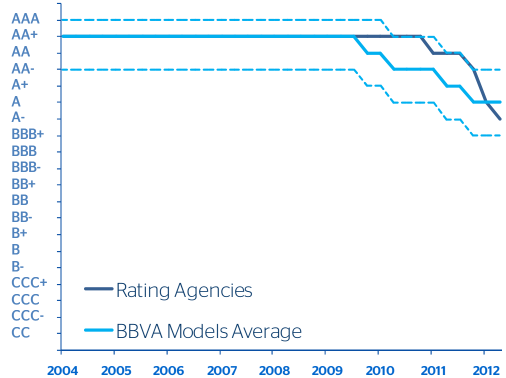
Source: Standard & Poors, Moody´s, Fitch and BBVA Research



Europe Periphery I: Sovereign Rating

(Rating agencies and BBVA scores +-1 std dev)

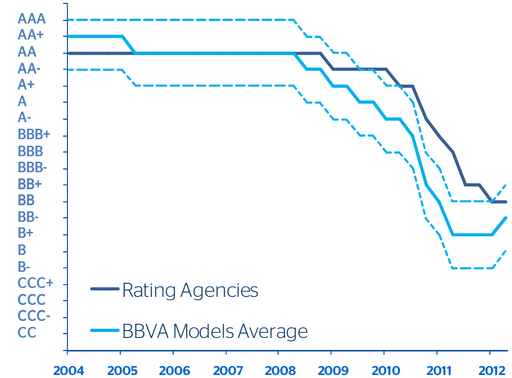
Source: Standard & Poors, Moody´s, Fitch and BBVA Research



Europe Periphery II: Sovereign Rating

(Rating agencies and BBVA scores +-1 std dev)

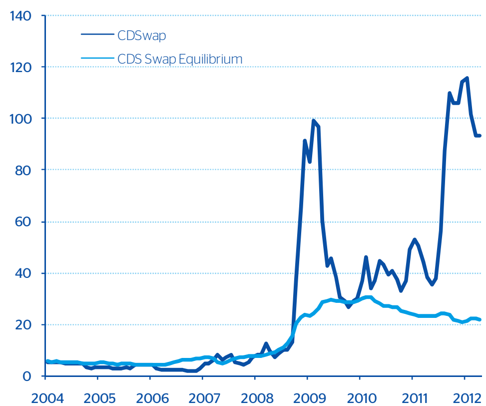
Source: Standard & Poors, Moody´s, Fitch and BBVA Research



Europe Core: CD Swap

(Actual and Equilibrium CDSwap)

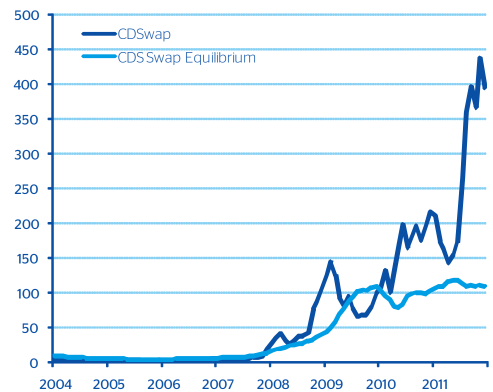
Source: BBVA Research



Europe Periphery I: CD Swap

(Actual and Equilibrium CDSwap)

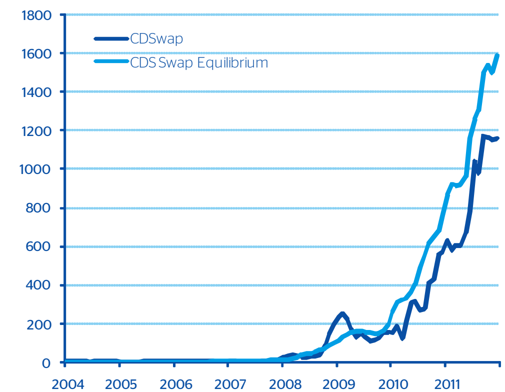
Source: BBVA Research



Europe Periphery II: CD Swap

(Actual and Equilibrium CDSwap)

Source: BBVA Research



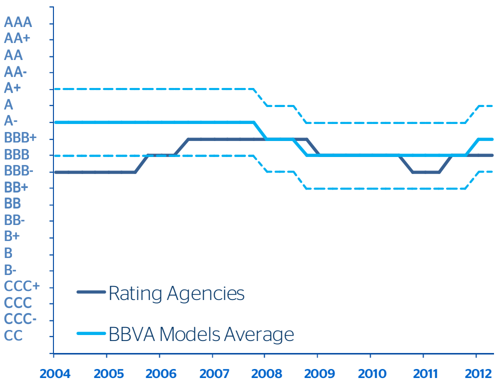
Section 3

Sovereign Ratings: Emerging Markets

EM Europe: Sovereign Rating

(Rating agencies and BBVA scores)

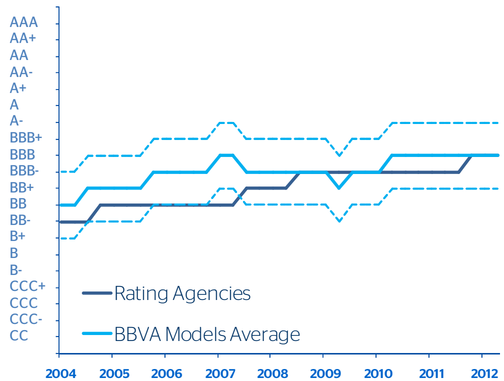
Source: Standard & Poors, Moody´s, Fitch and BBVA Research



Latam: Sovereign Rating

(Rating agencies and BBVA scores)

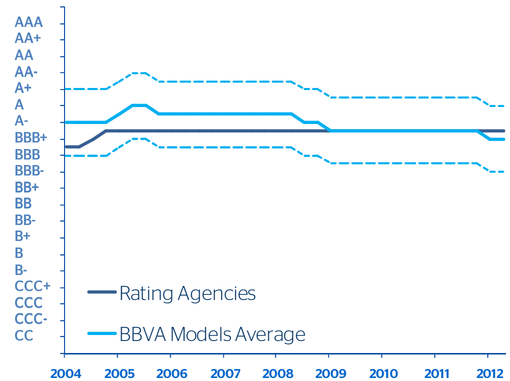
Source: Standard & Poors, Moody´s, Fitch and BBVA Research



Emerging Asia: Sovereign Rating

(Rating agencies and BBVA scores)

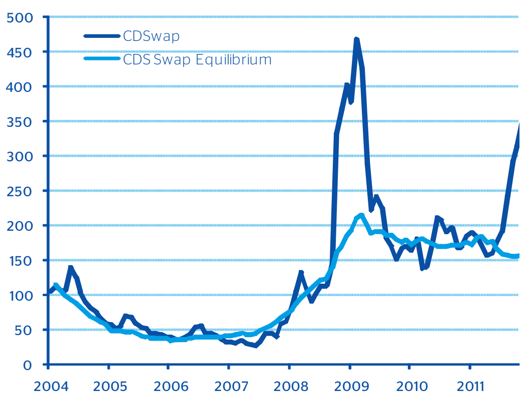
Source: Standard & Poors, Moody´s, Fitch and BBVA Research



Emerging Europe: CD Swap

(Actual and Equilibrium CDSwap)

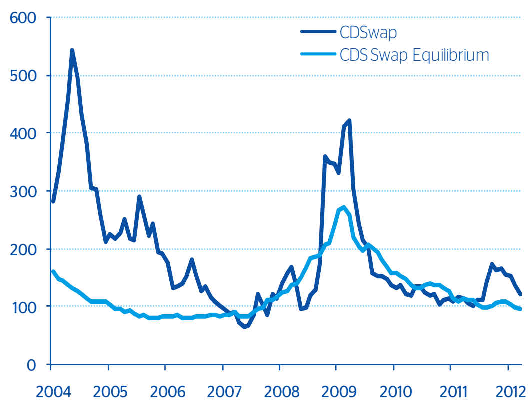
Source: BBVA Research



Latam: CD Swap

(Actual and Equilibrium CDSwap)

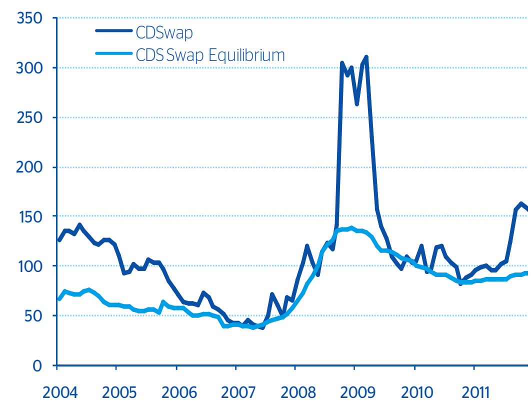
Source: BBVA Research



Emerging Asia: CD Swap

(Actual and Equilibrium CDSwap)

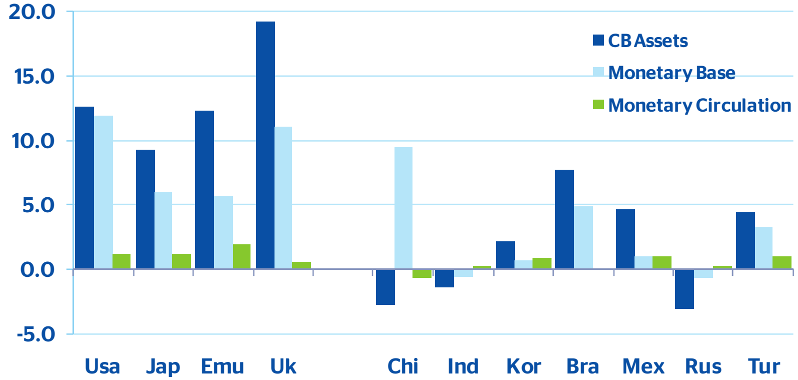
Source: BBVA Research



Special Topic: Central Banks Balance Sheet In Developed & EM Markets

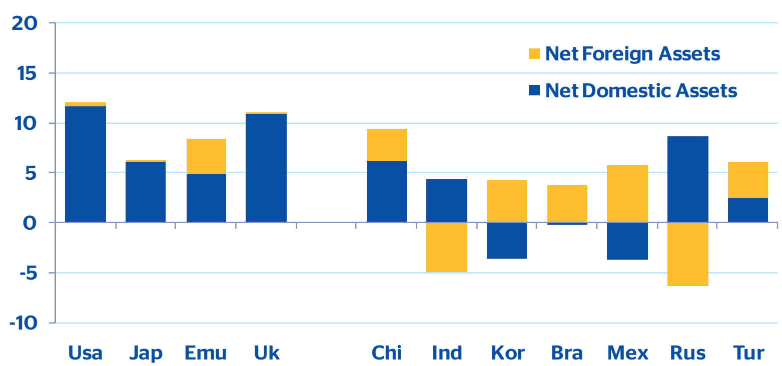
Central Balance Sheet and Money Expansion (2007-2011)

(Change 2011-2007 in percentage of GDP)
Source: BBVA Research and IMF (IFS and WEO/Apr12)



Sources of Monetary Base Expansion (2007-2011)

(Change 2011-2007 in percentage of GDP)
Source: BBVA Research and IMF (IFS and WEO/Apr12)



- **A significant increase of central bank (CB) balance sheets is a distinctive feature of the world economy since the global crisis** The balance sheet of CBs virtually doubled in EM countries in the period between 2006 and 2011 while it actually tripled in G7 economies.

- **However, since emerging market economies** have been growing much faster than G7 ones, the relative size of their CB balance sheets (that is over GDP) **increased only 3 percentage points as opposed to as much as 10 percentage points in the developed world.** Furthermore, central banks from emerging markets seem to have tamed their balance sheet expansion since 2009 while those in developed countries have not. CB assets over GDP have declined on average for the EAGLEs1/ since 2009, especially in China and Russia, where the strong expansion clearly started before the crisis. Brazil and Turkey, however, follow the pattern of the developed world, continuously increasing CB balance sheets.

- **Drivers of CB balance sheet growth differ massively: domestic assets are behind the growth of developed CBs and reserve accumulation is the key determinant for emerging markets.** Quantitative easing through securities purchase and liquidity injections has been behind the FED's balance sheet expansion as well as that of the ECB and the Bank of England. Foreign assets have been the driver in the EAGLEs, growing above GDP especially in China, followed by Brazil and Turkey.

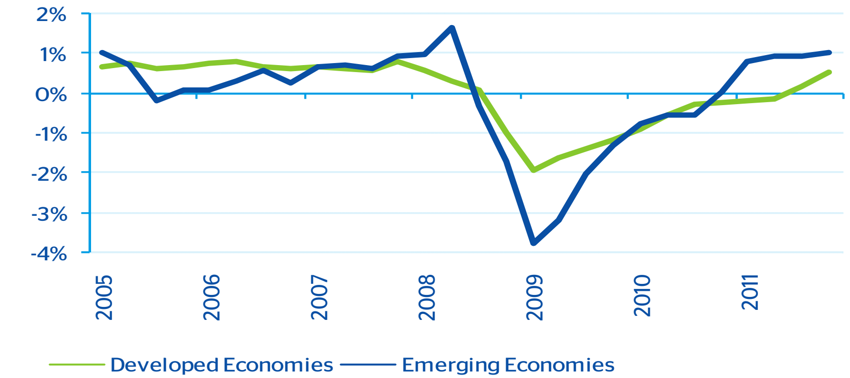
1/ Group of largest contributors to global growth with EM for the next 10 years, according to BBVA Research forecasts.
For more info see http://www.bbvaresearch.com/KETD/ketd/ing/nav/eagles.jsp

Special Topic: Central Banks Balance Sheet In Developed & EM Markets

Money Velocity Gaps (2007-2011)

(M2/Nominal GDP, relative to 2000-11 trend in %)

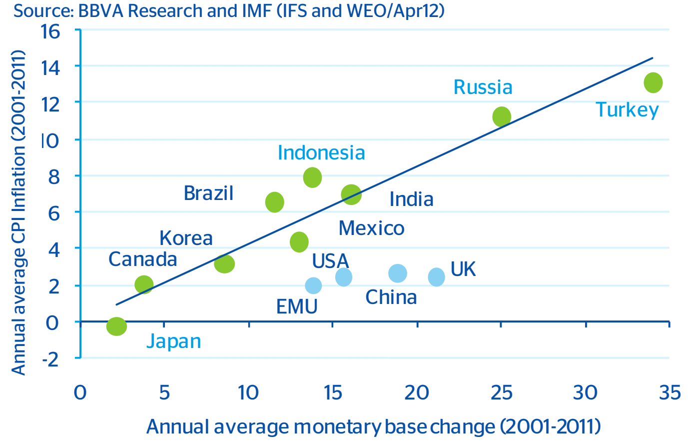
Source: BBVA Research and IMF (IFS and WEO/Apr12)



Money and inflation pressures (2007-2011)

(average annual change in percentage)

Source: BBVA Research and IMF (IFS and WEO/Apr12)



- **Rapid growth in CB balance sheets does entail some risks.** The most obvious one is inflation if we believe inflation is a monetary phenomenon in the long run. **Looking at the correlation between the expansion of the monetary base and inflation,** we find it is quite **high for many countries in our sample, especially in the EMs' universe but** the correlation **breaks for the Developed Economies,**
- **This is because the money inflation link will be also influenced by economic conditions**. In this sense **output and money velocity are also key** to influence the final link between money and inflation**:**
  - **Still negative output gaps in developed economies will prevent money to feed inflation but closing or positive gaps in EM´s poses more risk.** Developed economies activity is still running below potential and this will to contain inflationary pressure. However, economic activity has recovered very fast in EM economies
  - **The sharp drop in money velocity during 2008-2009 crisis helped to buffer inflationary pressures but now is reversing.** This is especially true in the case of the EM markets where velocity gaps are now positive and similar in size of the pre crisis levels. Velocity gaps are also recovering in industrial countries although to a slower pace and still below pre-crisis levels

-

- **The two factors above indicate that the margin to keep CB balance sheet expansion without feeding inflation is larger for Developed Markets**.
- **Other risks are related to CB asset quality for rapidly expanding NDA, sometimes with dubious assets, and exchange rate and interest rate valuation effects on the NFA side. The first risk is, of course, more true for CBs in developed countries and the second for those in emerging economies.**

Annex

Methodology : Indicators and Maps

- **Financial Stress Map:** It stress levels of according to the normalized time series movements. Higher positive standard units (1.5 or higher) stands for high levels of stress (dark blue) and lower standard deviations (-1.5 or below) stands for lower level of market stress (lighter colors)
- **Sovereign Rating Index:** An index that translates the three important rating agencies ratings letters codes (Moody´s, Standard & Poor´s and Fitch) to numerical positions from 20 (AAA) to default (0) . The index shows the average of the three rescaled numerical ratings.
- **Sovereign CD Swaps Map**: It shows a color map with 6 different ranges of CD Swaps quotes (darker >500, 300 to 500, 200 to 300, 100 to 200, 50 to 100 and the lighter below 50 bps)
- **Downgrade Pressure Map:** The map shows the difference of the current ratings index (numerically scaled from default (0) to AAA (20)) and the implicit ratings according to the Credit Default Swaps. We calculate implicit probabilities of default (PDs) from the observed CDS and the estimated equilibrium spread. For the computation of these PDs we follow a standard methodology as the described in Chan-Lau (2006) and we assume a constant Loss Given Default of 0.6 (Recovery Rate equal to 0.4) for all the countries in the sample. We use the resulting PDs in a cluster analysis to classify each country at every point in time in one of 20 different categories (ratings) to emulate the same 20 categories used by the Rating Agencies..
- **Macroeconomic Vulnerability Map:** Using Principal Component Analysis we construct five different vulnerability indicators that summarize information coming from 17 different variables in several dimensions of economic vulnerability: : Liquidity management (Reserves to Short Term Debt, Reserves to M2, Reserves to Imports for EM countries and Short term public debt relative to total Public Debt for developed countries), External Vulnerability (Current Account Balance, External Debt to Exports and External Debt to GDP),Fiscal Vulnerability (Fiscal Balance and Public Debt to GDP), Macroeconomic Strength (GDP Growth, Unemployment and Inflation) and Institutional Strength: (Rule of Law, Control of Corruption, Government Effectiveness, Political Stability and Absence of Violence, Investor Protection, Number of Days to start a business). Once principal components are calculated we assign colors according to the percentiles position with higher vulnerability scores assigned to the darker blue ranges.
- **Vulnerability Radar:** Shows a static and comparative vulnerability for different countries. For this we assigned several solvency , liquidity management and macro variables relative to the group of the Developed or Emerging countries depending on the country. Finally, we reorder in percentiles from 0 (lower ratio among the countries) to 1 (maximum vulnerabilities) Furthermore Inner positions in the radar shows lower vulnerability meanwhile outer positions stands for higher vulnerability.

Annex

Methodology: Models and BBVA country risk

- **GVAR Model:** The approach uses a dynamic multi-country framework for the analysis of the international transmission of shocks and is based on the GVAR toolbox, launched in December 2010, and sponsored by the ECB. The toolbox is based on work by Dees, di Mauro, Pesaran adn Smith (2007) and has been developed by Centre for Financial Analysis & Policy at Cambridge University. It comprises 26 economies, with the EA as one of the economies covered. The model is constructed by combining separate models for each of the 26 economies linking core variables within each economy with corresponding trade-weighted foreign variables. EA variables are GDP-weighted aggregates of eight countries (Austria, Belgium, Finland, France, Germany, Italy, Netherlands and Spain). The model has both real and financial variables: real GDP, inflation, the real equity price, the real exchange rate, short and long-term interest rates, and the oil price. All the data are observed at the quarterly frequency. More information about the model and the toolbox can downloaded at

  http://www-cfap.jbs.cam.ac.uk/research/gvartoolbox/index.html.
- **BBVA Research Sovereign Ratings Methodology:** We compute our sovereigns ratings by averaging four alternatives sovereign rating models developed at BBVA research:

- **Credit Default Swaps Panel Data Error Correction Model:** This model forecasts actual and equilibrium levels of CD Swaps for 40 developed and emerging markets. The model allows for dynamic and long run equilibrium deviation of CD Swaps including Global Risk Aversion and Idiosyncratic fundamental variables. The **long run equilibrium CD Swaps** are the result of equilibrium global risk aversion and idiosyncratic fundamental variables are finally converted to a 20 scale sovereign rating scale.
- **Sovereign Rating Panel Data Ordered Probit with Fixed Effects Model:** The model estimates a sovereign rating index (a 20 numerical scale index of the three sovereign rating agencies) through ordered probit panel data techniques. This model takes into account idiosyncratic fundamental stock and flows sustainability ratios allowing for fixed effects , thus including idiosyncratic country specific effects
- **Sovereign Rating Panel Data Ordered Probit without Fixed Effects Model:** The model estimates a sovereign rating index (a 20 numerical scale index of the three sovereign rating agencies) through ordered probit panel data techniques. This model takes into account idiosyncratic fundamental stock and flows sustainability but fixed effects are not included, thus all countries are treated symmetrically without including the country specific long run fixed effects.
- **Sovereign Rating Individual OLS models: These models estimates the sovereign rating index** (a 20 numerical scale index of the three sovereign rating agencies) individually. Furthermore , parameters for the different vulnerability indicators are estimated taken into account the own history of the country independent of the rest of the countries.