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EAGLEs

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Economic Analysis

Cross-Country Emerging
Markets Analysis

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The Impact of the QE in Emerging Markets: Managing Success Problems

- **A new round of Quantitative Easing in Western Countries impacts in EM Assets**

The coordinated action of the ECB, FED, BoE and BoJ has provided an important stimulus of foreign flows and asset prices in EM. The combined effect of reducing Convertibility Risk after Dragui's "...believe me, it will be enough" and the QE by both the FED, BoE and BoJ has provide extra liquidity, tightening risk premiums, increase equity markets and generate appreciation pressures across emerging markets, particularly to those most exposed to the Euro convertibility risk as Emerging Europe.

- **What do the models say about the potential impact and policy response of EM to the QE in Western countries**

The result of a small global DGE Model (GPM) depicts some stylized facts of the potential impact of QE in EM. The general effects will be positive but also dependent on the policymaker's response. Allowing a flexible response by letting the real exchange rate to appreciate will allow to exploit positive GDP effects but at a cost of the overvaluation of the currency. Contrary, a more activist approach will mitigate the over-appreciation of the currency but can generate overheating and excess credit growth. As we expect some "activism" to persist, positive effects on output could be reinforced but with trade-offs. Thus, EM policy-makers will face again the classical dilemmas of managing success ("strong capital inflows").

- **Warning Signals of QE in Emerging Markets?: The money-inflation link in EM is more robust so EM policy makers should be maintain a cautious stance**

The expansion of Central Bank balance sheets is not being an isolated phenomenon. The increase in domestic assets in developed markets is being transferred to net foreign assets in EM Central Bank balance sheets mainly through increase in net foreign assets (international reserves). Although poorer economic activity and the drop in money velocity has limited somehow the money-inflation link in developed countries the situation could become more challenging in some Emerging Markets as the long run relationship between money and inflation is being more robust in EM markets. As the output gap and money velocity gaps are not so damaged as in the West, EM policy makers should remain on alert to avoid a later overreaction in policy rates.

- **What about bubbles? Still far from there despite the recent credit growth acceleration. But again, "keep an eye" on it**

The strong inflows and lower risk premiums have also raised concerns about bubble formation risks. Excess credit growth is a real possibility in EM as a consequence of the CB sheet expansion in the North. But most of the EM countries have an important advantage here. As most of them (Asia and Latam) were de-leveraging during long periods after the Asian crisis, neither the level or the growth rates present the unsustainable patterns that were characteristic of the Developed Countries and Emerging Europe previous to the 2008 crisis. Despite this, excess credit growth should be closely monitored to avoid future bubbles.

A new round of Quantitative Easing in Western Countries impacts in EM Assets

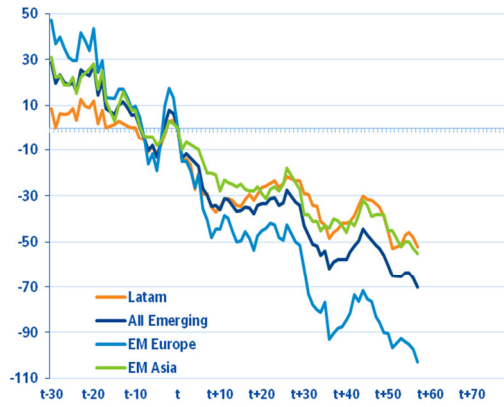
Facing increasingly renewed uncertainty times before the summer, Western Countries' Central banks decided to act again to restore a weak and highly uncertain outlook, by both reducing the Convertibility Risk in the Eurozone and provide further stimulus in US, UK and Japan. The trigger was the famous speech by the ECB Governor Mario Dragui on July 26th when the intention of the Outright Monetary Transactions program (OMTs), was announced in a very convincing way "...And believe me, it will be enough". Words were followed by actions and finally the OMTs was officially announced in September.

Also during summer, the message of coordination was reinforced after the Bernanke's Speech at Jackson Hole. This was the prelude the later approved Operation Twist and the anchoring expectations of very low interest rate for a more prolonged period of time. Further, the Bank of England and the Bank of Japan joined efforts to this global coordination action to both restore their domestic situation and international financial markets confidence.

Three months after the Dragui's Speech, the effects of these coordinated efforts in Emerging Markets asset prices have been sizable, similar and even larger than the previous QE2. The main results have been the following:

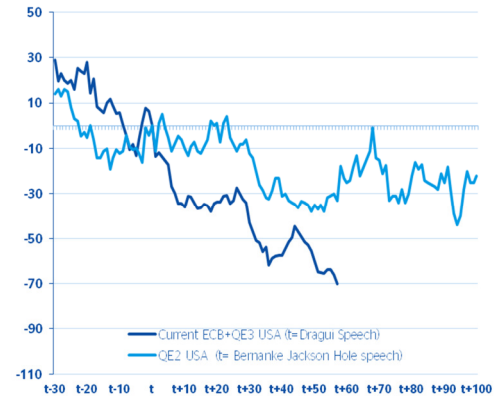
- On average, EM markets risk premiums have tightened around 70 bp, although the movement has been uneven. Emerging Europe risk premiums have decreased the most as the diminishing Euro Convertibility risk has provided an extra stimulus to the most exposed area to this potential event. Relative to the previous QE2 the impact has been more intense, as to the US QE the relaxation of the Euro convertibility risk after the ECB action has been added.
- EM Equity Markets have soared as economic confidence was somehow restored at least for now. During the last three months the EM stock markets have followed the path of developed markets increasing by near 9%, even above the near 6% of the SP500 index.
- Bond and Equity flows reversal has been more intense than the previous round of QE. This is not only the case of Emerging Europe but also the high tradable Emerging Markets as Russia, Turkey, Mexico and China. Charts 5&6 show the capital flows (bond and equity) reversal one quarter after both QE relative to the previous QE quarter. As can be observed darker colors (indicative for more intense reversals) show that the capital flows reversal of the recent ECB+QE3 has been more intense than the previous episode QE.
- The strong capital inflows have been reflected in general appreciation pressures of the exchange rates. However, not all the countries have allowed its currencies to reflect the increase in foreign flows with some EM countries being less prone to allow capital inflows being fully reflected in currency appreciation against the USD. Chart 3 shows the asymmetry of the movement. Emerging Europe currencies fluctuation against the USD has been very clean, and more intense on average as they allowed a near 8% appreciation of the exchange rates. In Latam, Mexico and Chile have allowed their currencies to appreciate somehow, while Brazil has tried to avoid excess appreciation and Peru and Colombia did not allow any appreciation. In Asia, except Malaysia and Thailand the rest of the countries have been also very active in buffering the exchange rate appreciation.

Chart 1
EM Risk Premium (bp) during ECB+QE3
(Embi global cumulative decrease after QE3=t)



Source: BBVA Research and Haver

Chart 2
EM Risk Premium (bp) during QE2 and QE3
(Embi global cumulative decrease after QE2=t)



Source: BBVA Research and Haver

Chart 3
EM Exchange Rate appreciation during QE3
(cumulative decrease or appreciation after QE3=t)

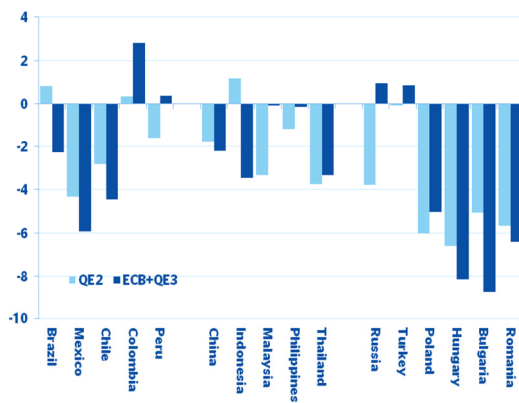
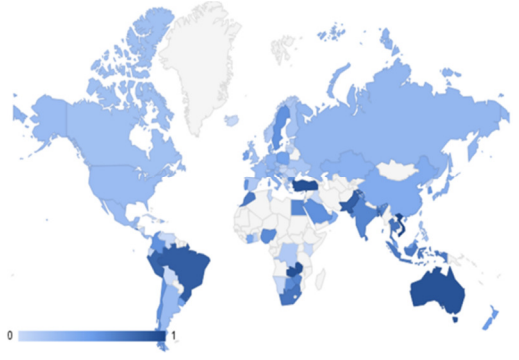


Chart 5
Bond and Equity Flow Reversal after QE2
(change in the quarterly standard deviation of flows post QE2 vs pre QE2. Darker: Maximum, Lighter: Minimum)



Source: BBVA Research

Chart 4
Equity Markets after QE3
(cumulative % change after QE3=t)

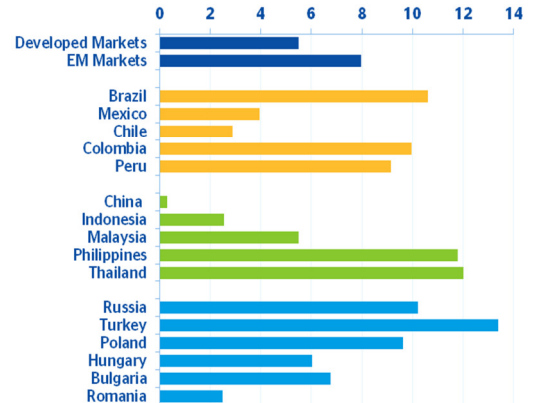
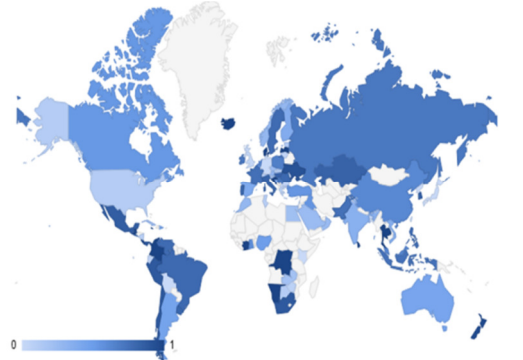


Chart 6
Bond and Equity Flow Reversal after QE3
(change in the quarterly standard deviation of flows post QE3 vs pre QE3. Darker: Maximum, Lighter: Minimum)



Source: BBVA Research

What do the models say about the potential impact and policy response of EM to the QE in Western countries

To understand the QE effects and the policy dilemmas on EM economies I use a highly stylized a Dynamic General Equilibrium New-Keynesian Open Economies Model (see the appendix at the end for the details) similar to those used by the IMF. For the analysis of the QE shock, I assume that actions implemented by the Western CB will have some positive effects on their own output (a transitory and gradual increase of near 1% in the foreign output gap) relative to the baseline. This will be combined with a transitory reduction in the EM countries risk premium (around 40 bp during one year) relative to the non QE scenario (base) as we have observed in the previous and current QE. Before to comment the simulation results two important caveats deserve to be mentioned:

- The first important think to understand is the difficulty to quantify the effects of the QE in both the Western and the EM Countries. In Bernanke own words *“While there is substantial evidence that the Federal Reserve's asset purchases have lowered longer-term yields and eased broader financial conditions, obtaining precise estimates of the effects of these operations on the broader economy is inherently difficult, as the counterfactual--how the economy would have performed in the absence of the Federal Reserve's actions--cannot be directly observed...”* As our base case (Non QE Scenario) is not really a “disaster one” we consider this exercise as a lower bound. Interpreting the importance of the recent coordinated action by Western Central Banks would require knowing the counterfactual scenario of no action by Western CBs during the summer had not provided the stimulus. Sincerely, I believe that this possibility would have had a more serious consequences than our baseline
- A second caveat is that the response of EM policy makers can influence the magnitude and the pattern of the response to the shock. Thus, by modifying the interest and the exchange rate the EM Monetary policy makers can influence the impact of QE in output and inflation. The main reason is that although the foreign output shock will have in general positive effects in the EM economy, the decrease in the risk premium and the increase in global risk appetite will increase the foreign capital inflows finally appreciating the EM exchange rate. Thus, the initial positive impact in output and employment can be compensated by the appreciation of the exchange rate and the endogenous response of monetary policy if decide to react to the increase in domestic output gap and inflation. In essence the EM policy makers will face the classical dilemmas of managing strong capital inflows, thus evidencing that “managing success” could be also challenging.

Among others, these are several possibilities for policy makers to manage the shock but by simplicity we will focus in the polar cases:

- Scenario A (“Flexibility”): The monetary policy variables will react in a flexible way allowing exchange rate to appreciate in response of strong capital inflows.
- Scenario B (“Activism”): Decreasing (or maintaining) domestic interest rates to de-incentive strong capital inflows and/or avoid exchange rate appreciation through interventions or capital controls.

The main results for both scenarios can be observed in the graphs below. They include the different results according to the alternative monetary policy paths to the foreign output positive shock and the decrease in the risk premium:

- In the “Scenario A” both responses in GDP growth and inflation are positive. However, inflation will beyond output in percentage points. Note that the output and inflation response during the first year are not really large and lower than in a scenario including only the external trade channel (“excluding the capital flows and risk premium effects”)

due to the initial negative effects of the real exchange rate appreciation. Is this later possibility which have been referred by some EM policymakers as “beggar thy neighbor policies”. However, this is not the end of the story, and the lagged effects of the risk premium will allow a reduction of the official interest rate whose positive delaying effects on activity will start to outweigh the short term negative real exchange appreciation impact. Thus, the complete mechanism will have positive effects in the EM output. But this strategy is not a “free lunch”, as EM countries where overvalued exchange rate and/or external sustainability are already a problem will exacerbate these problems.

- In the Scenario B (“Activism”), the policy makers reduce domestic interest rates to de-incentive capital inflows and avoid exchange rate appreciation if they believe this is already a problem. This scenario will trigger higher effects on output and inflation in both 2013 and 2014 relative to base, and the difference is also sizeable. This strategy has a clear vulnerability trade off as trying to avoid exchange rate over-appreciation by responding with a looser monetary policy will result in excess activity growth (and possibly domestic credit growth) and much higher inflation. This “overheating” problem can be difficult to correct later without a significant tightening in official interest rates. Thus, countries extreme signs of overheating (excess growth, credit and inflation) would not be good candidates for this option.

Chart 7
Response of GDP to a QE Shock
(in pp relative to base or non QE scenario)

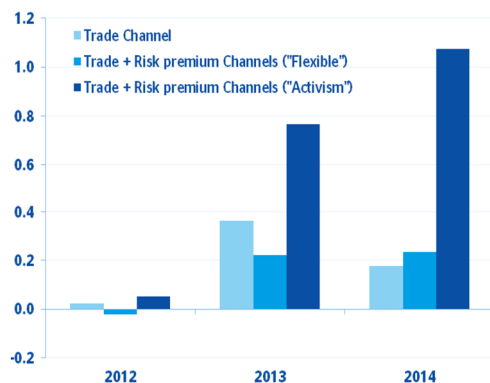


Chart 8
Response to Inflation to a QE Shock
(in pp relative to base or non QE scenario)

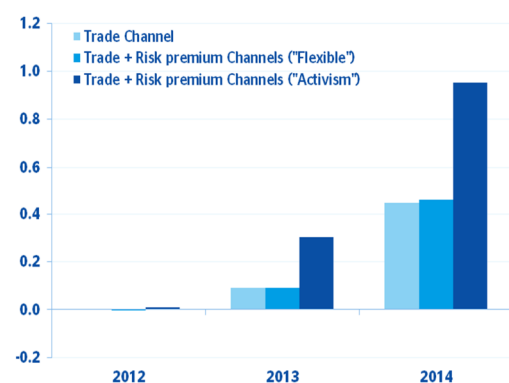


Chart 9
Response of Real Exchange Rate to a QE Shock
(in % relative to base or non QE scenario)

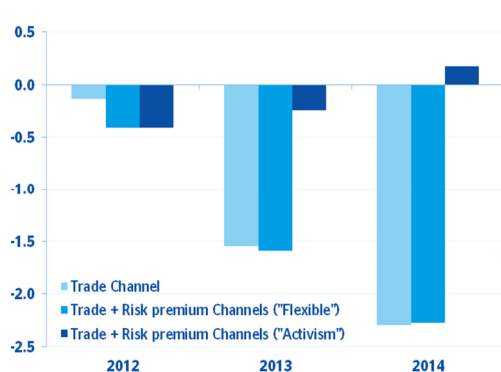
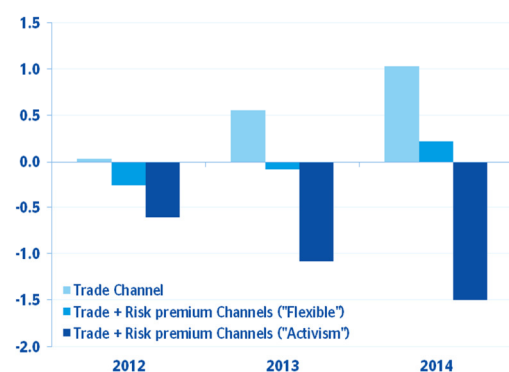


Chart 10
Response of interest rate to a QE Shock
(in pp relative to base or non QE scenario)



Source: BBVA Research

Source: BBVA Research

So, what are the main conclusions that we can reach from the exercise? Can we explore what would be the response of the different emerging markets? :

- In general terms we consider the Western Central Banks QE expansion as a positive scenario for Emerging Markets. The main reason is that the counterfactual (Non QE action) would have pose more severe dilemmas for the EM markets than the current scenario. In some sense, we are talking of managing success. Yes, it will generate pressures but less severe than the alternative scenario.
- Emerging Markets have several options to buffer the Western Central Bank QE expansion although they will have important trade-offs. EM countries with already real appreciated exchange rates and external vulnerability problems can opt to introduce some activism to avoid exchange rate over-appreciation (exchange rate interventions or even capital controls if overvaluation is large) However, they should remain vigilant on overheating risks and they can complement their decisions by introducing different macro-prudential policies. A polar case of the previous example is the EM countries with pegged exchange rates. As for example Hong Kong or the Gulf countries. The transmission of the QE can be very powerful as the nominal exchange rate buffer mechanism will not operate.
- Contrary, countries with overheating and excess credit growth should avoid excess activism to limit currency appreciation or complement with alternative measures as tightening reserve requirements. Otherwise, there is a potential risk of generating bubbles.

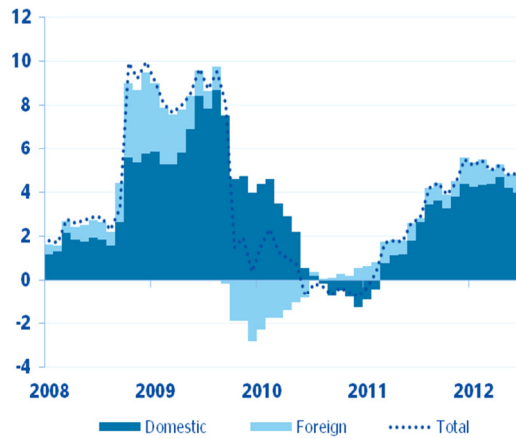
Warning Signals of QE in Emerging Markets?: The money-inflation link in EM is more robust so EM policy makers should be maintain a cautious stance

As we have described before one of the risk of Central Banks Balance sheet expansion is inflation. We have analyzed this from a short term new Keynesian model; in this section we will check the inflation problem from a more long run point of view. If we believe that inflation is a monetary phenomenon in the long run the QE expansion could entail some risks.

This new round of monetary stimulus is not new at all, as a significant increase of central bank (CB) balance sheets has been distinctive feature of the world economy since the global crisis began in 2007-08. But the Western Countries increase in CB Assets has not been an isolated event as this has been partially transmitted to the EM markets. In fact, 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 developed countries have not.

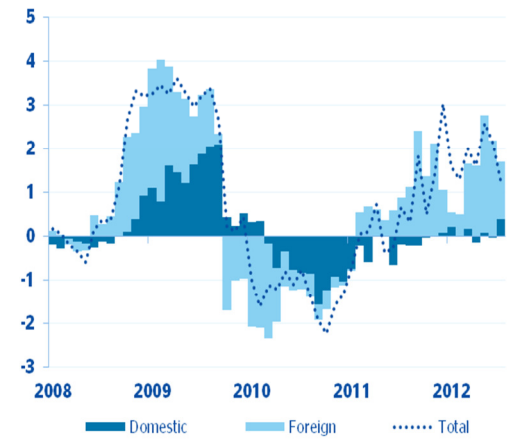
In any case, the drivers behind of CB balance sheet expansion in Western and EM countries differ significantly: While domestic assets are behind the growth of developed CBs reserve accumulation is the key determinant for emerging markets. Thus, avoiding currency appreciation has favored the transmission of Western Countries CB balance sheet expansion from developed countries to the emerging ones (see Charts 11 and 12).

Chart 11
Annual Change in Developed CB Assets



Source: BBVA Research and Haver

Chart 12
Annual Change in Emerging CB Assets

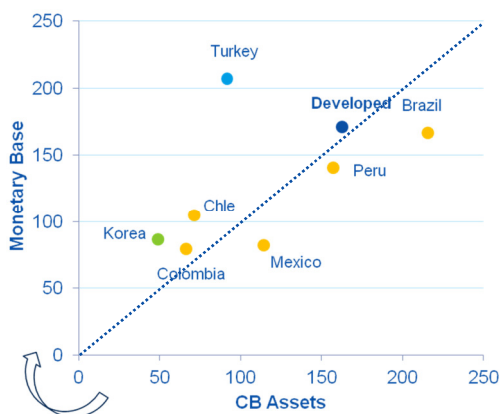


Source: BBVA Research and Haver

For CB assets expansion to finally feed inflation the mechanism has to pass some intermediate steps:

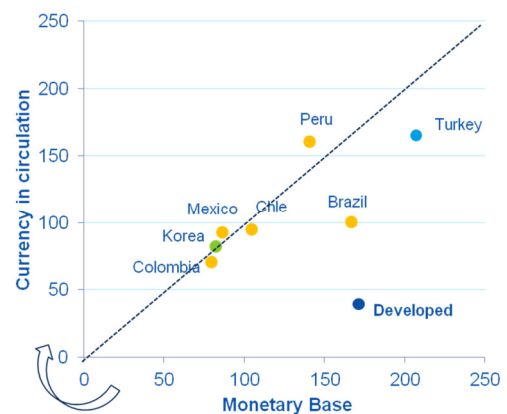
- First, CB assets increases can be passed through to money base or not depending on whether the CB asset expansion is finally drained or not. Note that most of the countries have allowed the translation but other countries as Brazil, Peru and Mexico have tried to limit the link by, for example, sterilizing interventions (see Chart 13).
- Second, CB can limit the pass-through from money base to money in circulation by using some tools as the bank reserve requirements. Note for example than Brazil and Turkey have been very active in using these instruments (see Chart 14).

Chart 13
From CB Assets to Monetary Base 2007-2012
(% Change in 2007-2012)



Source: BBVA Research and Haver

Chart 14
From Monetary Base to Currency 2007-2012
(% Change in 2007-2012 yoy change)



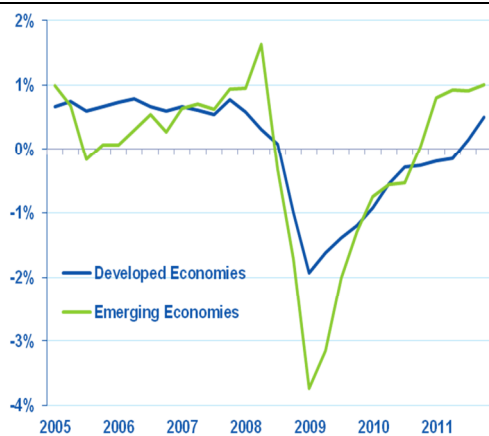
Source: BBVA Research and Haver

- Last, but not least, the money inflation link will be also influenced by economic conditions and money velocity according to the Fisher's Quantitative Money Identity ($Money * Velocity = Prices * Real Income$). In this sense output and money velocity gaps (aoutput and velocity relative to long term trends) are also key to influence the final link

between money and inflation. Regarding to this issue we can observe the following difference between developed and emerging markets (see Charts 15 &16):

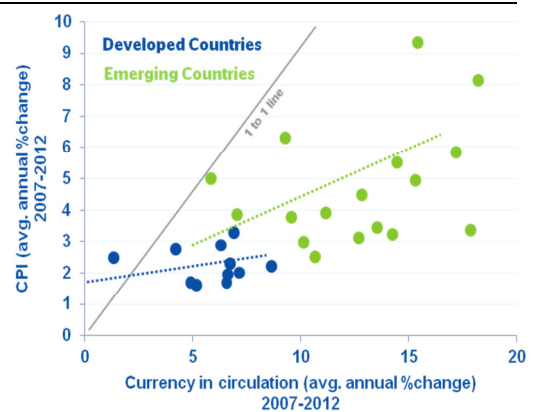
- o Still negative output gaps and decreasing velocity gaps in developed economies have helped to prevent money to feed inflation.
- o Contrary, closing or positive gaps in EM's with higher pressures from money velocity poses more risk in EM markets. This explains a higher relationship between money and inflation among the Emerging Markets, and why EM Central Banks should keep alert to prevent from money to finally feed inflation.

Chart 15
Money Velocity Gaps
(Money Velocity Deviation from linear trend)



Source: BBVA Research and Haver

Chart 16
Currency in circulation and Inflation 2007-12
(avg yoy change)



Source: BBVA Research and Haver

Can we infer something from the CB transmission mechanism and the long run money-inflation link for the actual situation? Here are some conclusions from the analysis:

- First, Emerging Markets have been used alternative tools to prevent that the increase in reserves (Net Foreign Assets) finally passed to inflation. We believe that they will maintain some kind of activism to limit some of the monetary expansion created by the CB assets expansion of the developed central banks. During this new round of QE we will continue to observe foreign exchange interventions to limit the impact on monetary base and/or Reserve Requirement movements to limit the translation of monetary base to currency in circulation. In summary, activism is and will be increasing over time (as it being already happening) unless a renewal of the Eurozone crisis appears again.
- Second, Emerging Markets Central Bankers will have to keep very alert about medium term inflation perspectives. Despite the available tools to break the money inflation link, the current round (and the last two) of Quantitative Easing is relatively strong. If not well managed, the risks of later over-reaction in monetary tightening to control excess inflation in some of the countries are non-negligible. The short term looser monetary policy stance can be followed by a tighter monetary later if inflation pressures are not well contained.

What about bubbles? Still far from there despite the recent credit growth acceleration. But keep an eye

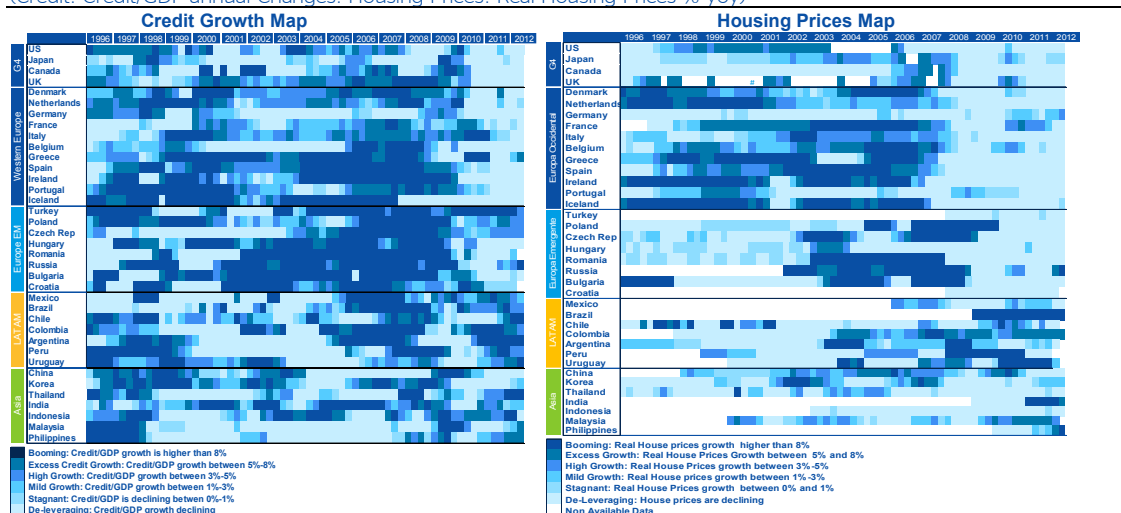
The second worry about the monetary expansionary effects of Western Countries in EM Markets is that global excess liquidity can start to feed up some bubbles episodes. Although a latent risk, I believe that the situation in emerging markets is generally different from the one experienced in Developed Economies previous to the 2007-08 crisis with the exception of some Emerging Countries in Central and Eastern Europe.

In general terms, EM countries like Asia and Latam which suffered the EM crisis of the end of the 90s (the 1997-98 Asian Crisis and Latam crisis at the end of the nineties at the beginning of the century) remained isolated of the booming period up to the current one. Besides these countries were de-leveraging during long lasting periods so it is difficult to find significant deviations from the equilibrium levels as we observed in the Developed Countries prior to 2007-08. In the Chart 17 we show our private credit and real housing prices growth tensions. Darker blue colors accounts for tensions in the sense that the annual credit/GDP change or real housing prices growth was excessive and lighter blue colors are indicative for stagnant or de-leveraging situations.

Chart 17.

Credit and Real housing Map Pressures 1996-2012

(Credit: Credit/GDP annual Changes. Housing Prices: Real Housing Prices % yoy)



Source: BBVA Research

According to this, the regional situation is the following:

- The Asian crisis at the end of the 90s was followed by a long lasting correction of both credit and housing prices until 2005. Some countries were especially hit as Malaysia, the Philippines, Thailand and Indonesia. We see some regional signs of strong recovery at present, although they are partially the result of rebound from very low levels and we consider them not enough to talk about overheating. Concern rose in China during 2010, but the governments took measures to cool down upward pressures, while in India housing prices growth continue to be excessive and should be tackled.
- LatAm followed the Asian pattern after crisis in the 90s, but de-leveraging was short lived. Mexico was the outlier as the Tequila crisis triggered negative and long lasting effects in both credit and housing prices. As in Asia, we now see some potential signs of

overheating, especially in credit markets, but we don't consider the current misalignments as worrying and markets are closer to equilibrium levels.

- Emerging Europe was the outlier in the pre-crisis period, sharing some of the excesses with their Western neighbors. The damaging effects of the 2008 burst partially explain why the current vulnerability of the region is higher than in the rest of emerging markets. This is especially the case of the Baltics, but also of Romania, Bulgaria and Hungary. These countries will continue to face a deleveraging process during the mid-term. In Turkey, after suffering a banking crisis in 2001, excess credit growth became apparent in 2010-11 but macro-prudential measures and liquidity tightening have cooled down credit growth and housing prices are not growing in real terms.

The bottom line of the story: the incipient signs of strong growth in credit and housing markets recovery should be monitored, but it is still too early to classify it as a bubble. We consider that Asian and Latam markets are now close to equilibrium levels, while some of the Emerging Europe will continue to clean up past excesses.

Annex: QE effects through a DSGE Open Economy Model

The GPM models are New Keynesian Small Dynamic Stochastic General Models developed by the IMF (see references) for forecasting and policy analysis purposes. These models are fundamentally gap models, in which deviations of variables from their equilibrium values play a critical role in the functioning of the system. The version presented here corresponds to an open economy model in which we have simulated an equivalent QE shock. The shock is simulated through a foreign output gap shock combined with a decrease in the risk premium (introduced in the model by decreasing the real equilibrium interest rate). The model is estimated by Bayesian techniques. The behavioral equations of the model are the following:

-Output Gap Equation: This equation relates cyclical activity as a positive function of lagged and expected domestic output gap (y_i), lagged foreign activity output gap (y_j) and real exchange rate depreciation (z_i) with a negative relationship with lagged real interest rate (rr_i)

$$y_{i,t} = \beta_{i,1}y_{i,t-1} + \beta_{i,2}y_{i,t+1} - \beta_{i,3}rr_{i,t-1} + \beta_{i,4}z_{i,j,t-1} + \beta_{i,5} \sum_j \omega_{i,j,5}y_{j,t-1} + \varepsilon_{i,t}^y$$

-The Inflation Equation: It assumes a positive relationship between actual inflation (π) with lagged and inflation expectations. It also shows a positive relationship with the change in the real depreciation of exchange rate (z).

$$\pi_{i,t} = \lambda_{i,1}\pi_{i,t+1} + (1 - \lambda_{i,1})\pi_{i,t-1} + \lambda_{i,2}y_{i,t-1} + \lambda_{i,3} \sum_j \omega_{i,j,3}(z_{i,j,t} - z_{i,j,t-1}) - \varepsilon_{i,t}^\pi$$

-The policy Interest rate Equation: is a standard New Keynesian Taylor rule type with policy rate (I) responding positive to the output gap (y_i) and the difference of inflation expectations relative to target allowing also for interest rate smoothing. It also includes a positive relationship with the equilibrium interest rate (R).

$$I_{i,t} = (1 - \gamma_{i,1}) [\bar{R}_{i,t} + \pi_{i,t+4} + \gamma_{i,2}(\pi_{i,t+3} - \bar{\pi}_{i,t+3}) + \gamma_{i,4}y_{i,t}] + \gamma_{i,1}I_{i,t-1} + \varepsilon_{i,t}^I$$

The Exchange Rate Equation shows that Uncovered interest parity holds in real terms. Thus the expected real exchange depreciation (LZ^e) should be equal to the real interest rate differential ($RR_i - RR_{us}$) plus a risk premium ($\xi^{RR-RR_{us}}$).

$$(RR_{i,t} - RR_{us,t}) = 4(LZ_{i,t+1}^e - LZ_{i,t}) + (\bar{RR}_{i,t} - \bar{RR}_{us,t}) + \varepsilon_{i,t}^{RR-RR_{us}}$$

$$LZ_{i,t+1}^e = \phi_i LZ_{i,t+1} + (1 - \phi_i) LZ_{i,t-1}$$

Finally, the Unemployment Equation shows the Okun's law or the relationship activity (y_i) and unemployment (u_i).

$$u_{i,t} = \alpha_{i,1}u_{i,t-1} + \alpha_{i,2}y_{i,t} + \varepsilon_{i,t}^u$$

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