

Recent market developments.

Jorge Sicilia, Chief Economist BBVA

Foreign Exchange Contact Group

Frankfurt, 6 May 2014



BBVA

RESEARCH

Foreign Exchange Contact Group
6 May 2014

Contents

Financial markets

Macroeconomic outlook

Inflation expectations

Fragmentation and its impact on monetary policy: a comment on forward guidance

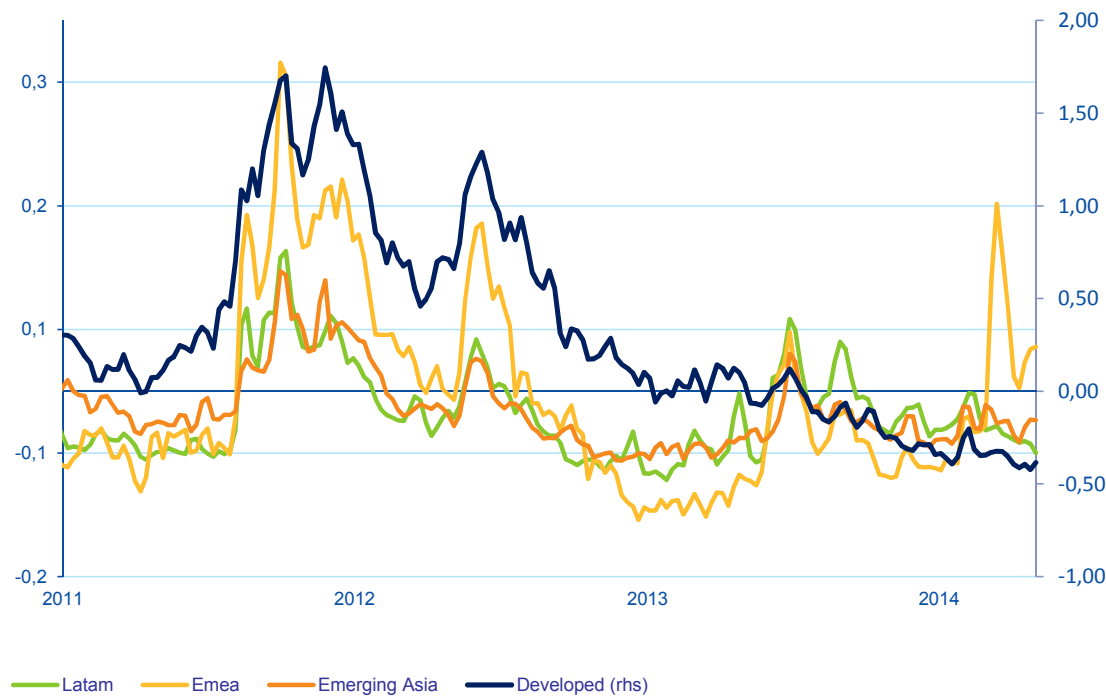
Some preliminary remarks on QE

Issues for discussion: challenges

Renewed tensions in EMEA have not spread, but still a source of concern for the global and European outlook

Financial tensions Index, Developed vs Emerging markets

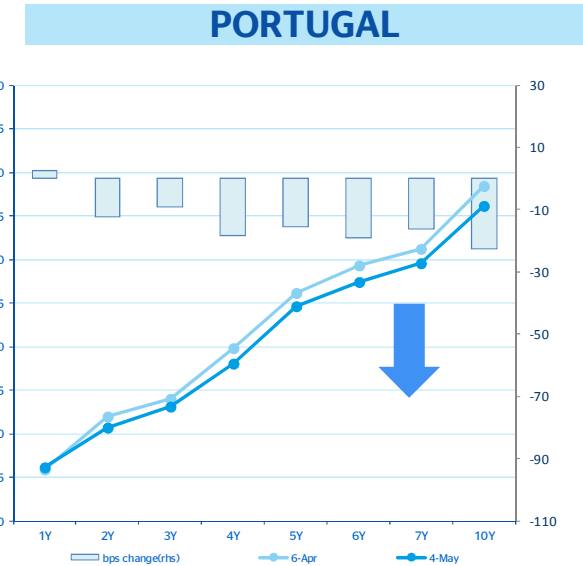
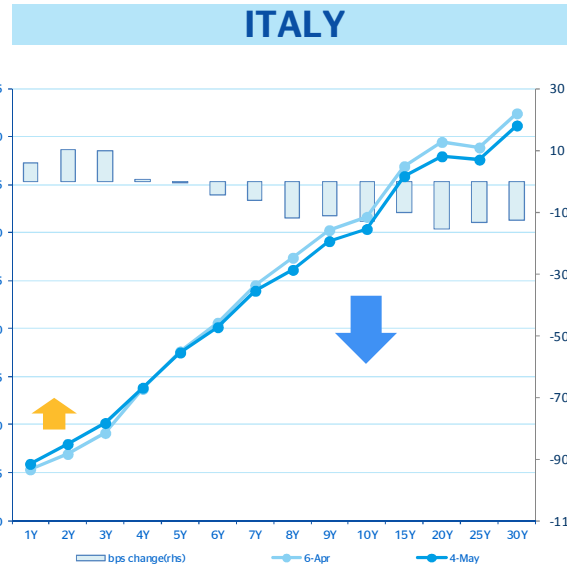
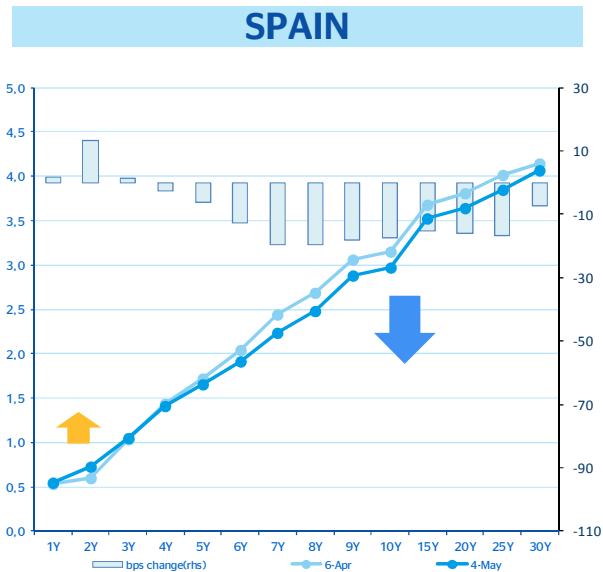
Source: BBVA Research



QE talks lend support to periphery bonds, mostly in the mid and long-end of the curves.

European periphery bond yields

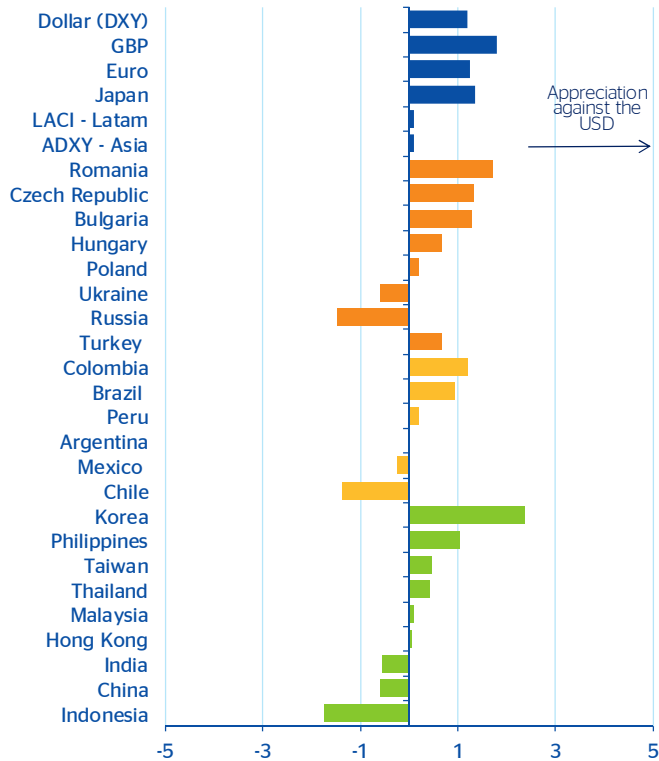
monthly and YTD change, bps
Source: Bloomberg and BBVA Research



FX: EM's recent appreciation is fading, while the EUR has yet to price-in "QE talks".

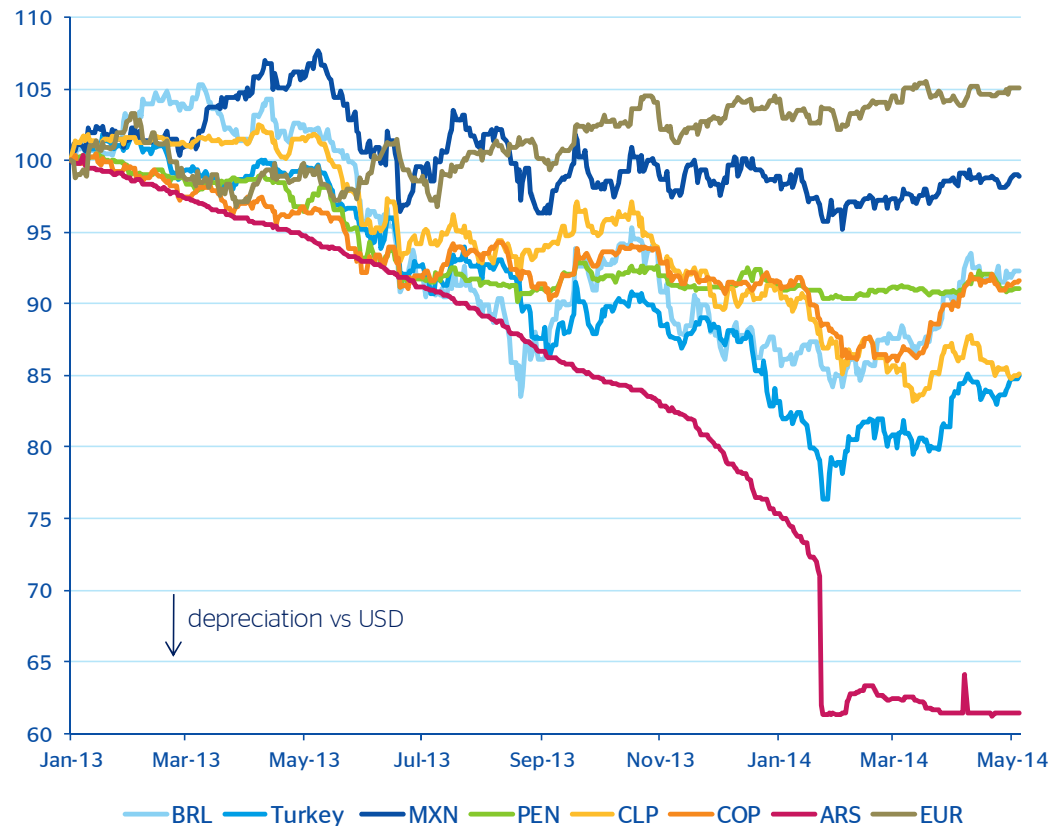
FX vs USD, monthly change, %

Source: Bloomberg and BBVA Research



DXY dollar Index against major peers

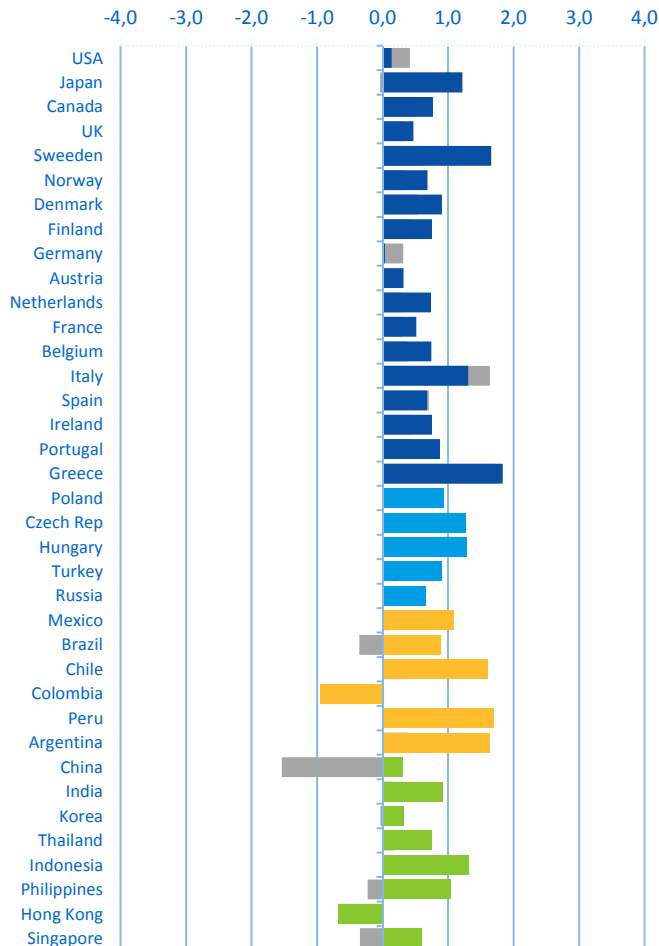
Source: Bloomberg and BBVA Research



Capital has been entering into both EM and periphery economies, but inflows are slowing down.

Portfolio Flows: current and previous month

(Country Flows over total Assets, %)
Source: BBVA Research through EPFR data



*Grey areas represent last month portfolio flows

Led by institutional investors, EM inflows have been positive in April. Yet they have been slowing down in the last three weeks (mainly those to EMEA).

Very positive inflows into peripheral bonds are also weakening, and turned into outflows on the week ended on 30 April.



BBVA

RESEARCH

Foreign Exchange Contact Group
6 May 2014

Contents

Financial markets

Macroeconomic outlook

Inflation expectations

Fragmentation and its impact on monetary policy: a comment on forward guidance

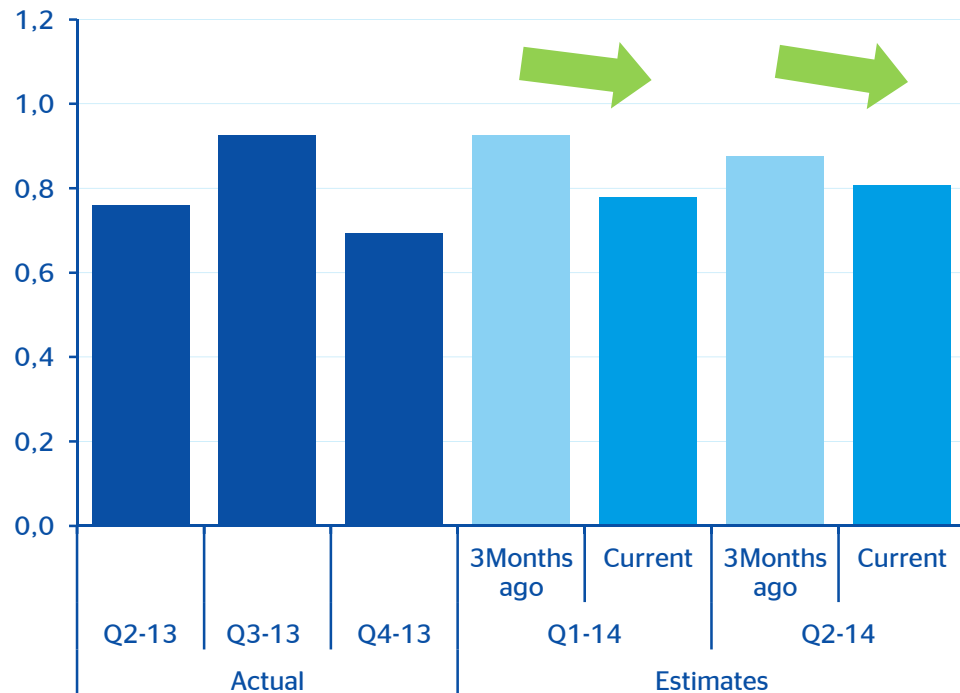
Some preliminary remarks on QE

Issues for discussion: challenges

Global Cycle: growth is still robust but around 0.8%

World GDP Growth (% QoQ)

based on BBVA-GAIN
Source: BBVA Research

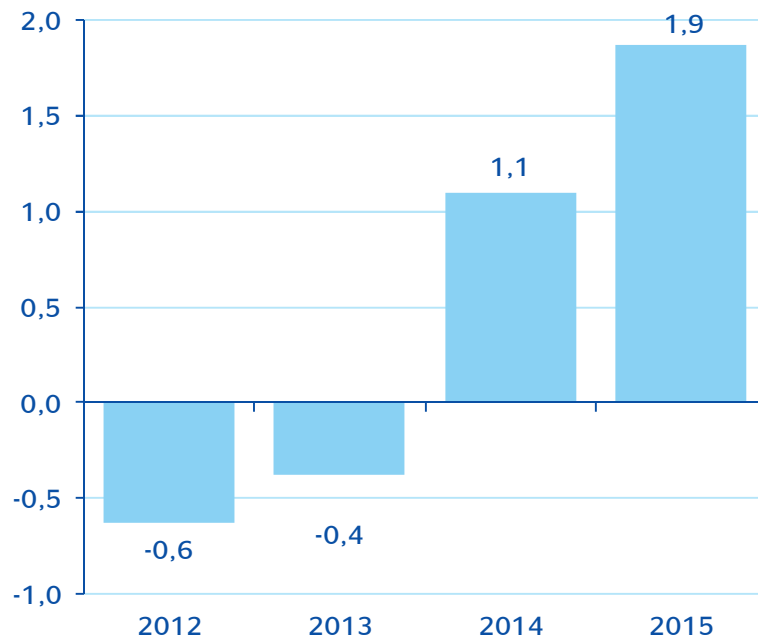


Overall, higher growth in developed economies partly offsets lower growth in emerging economies

The eurozone: the economic growth gains momentum, as expected

Eurozone: GDP growth (YoY)

Source: BBVA Research



Domestic demand will contribute to the recovery in 2014, especially investment, with resilient private consumption

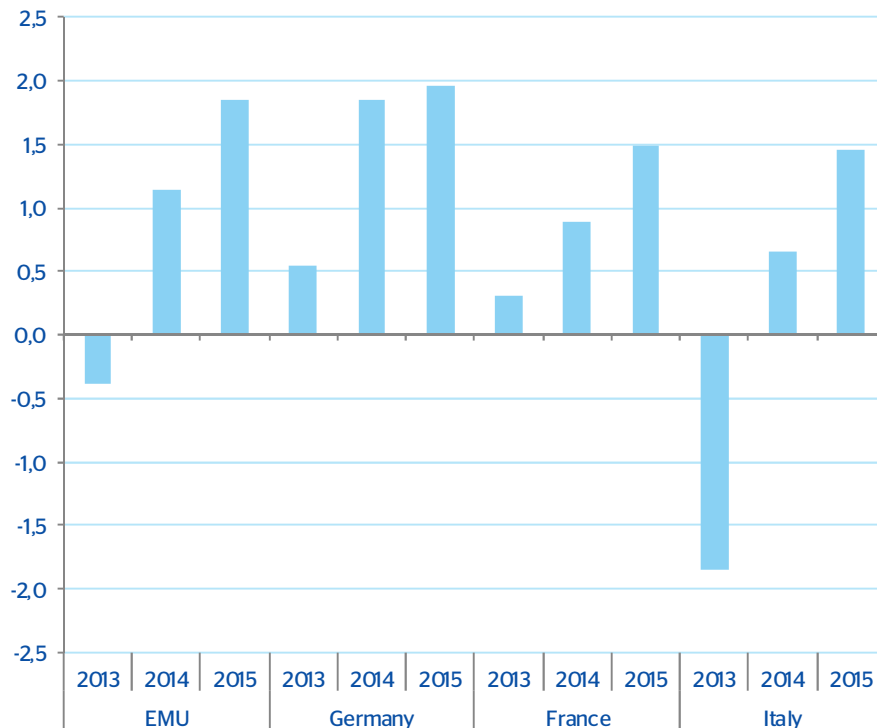
External support could lessen in the forecast horizon, due to the strength of the euro

Ongoing banking union and **subdued financial stress** should support the credit recovery in 2015

Across the eurozone countries: a widespread mild recovery

Eurozone countries: GDP growth (YoY)

Source: BBVA Research



Germany continues to lead the eurozone. Unchanged outlook, though some measures agreed by the new government depart from recent stance.

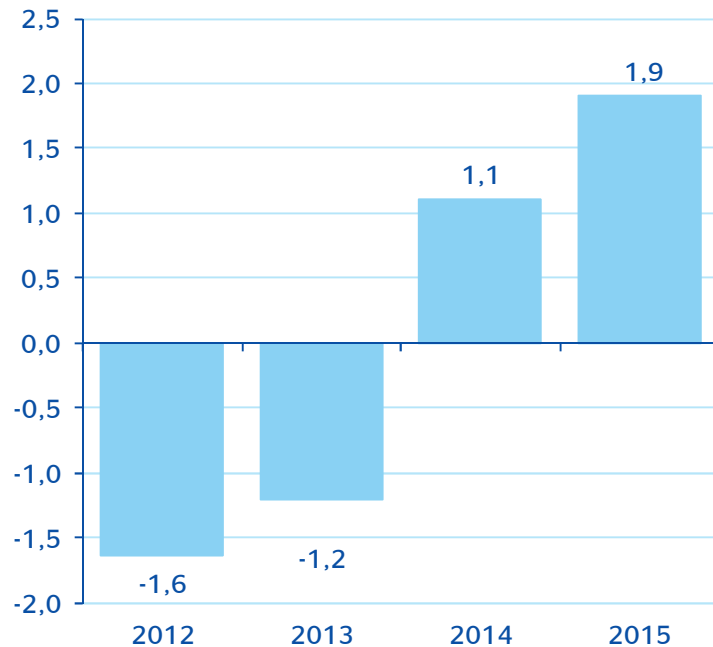
France: Still lacking a firm recovery.

Italy: The economy is recovering, with more political stability and some promising reform initiatives that need to be implemented

Spain: gradual recovery after a long recession

Spain: GDP growth (YoY)

Source: BBVA Research



Strong export growth as export prices offsets euro appreciation while domestic demand picks up in a context of fiscal adjustment

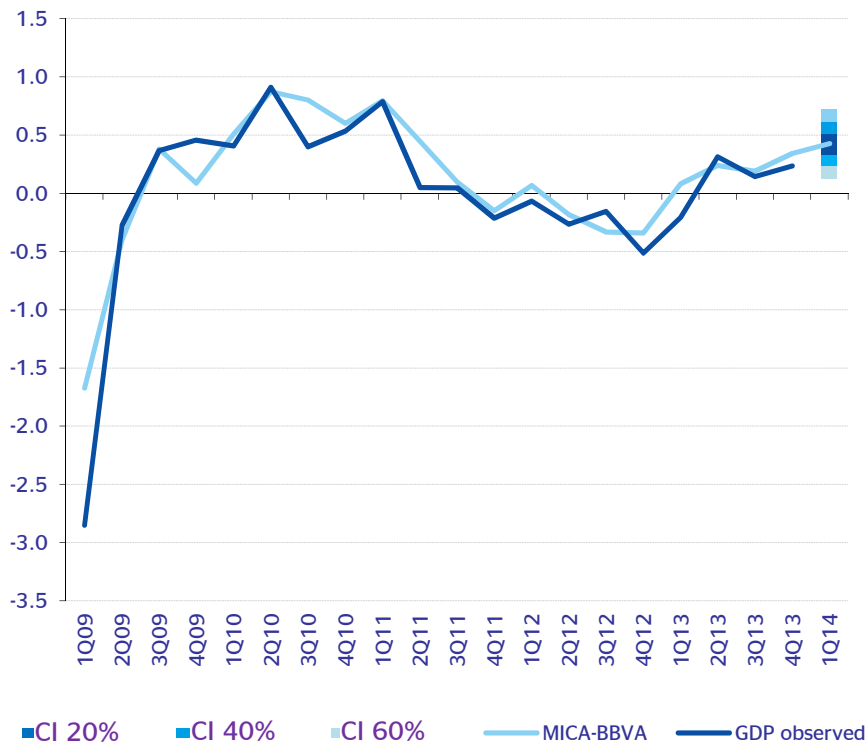
Investment in M&E grows faster than average EMU and improves medium-term GDP growth outlook

Risks ahead: both external (Euro appreciation, deflation) and domestic (Reform fatigue, the Catalonia issue)

Eurozone: stronger domestic demand for 1Q14

EZ: real GDP growth and forecasts based on MICA-BBVA model (% QoQ)

Source: BBVA Research
Current forecast: 4th December



Our MICA-BBVA model projects quarterly GDP growth of around 0.4% q/q in 1Q14.

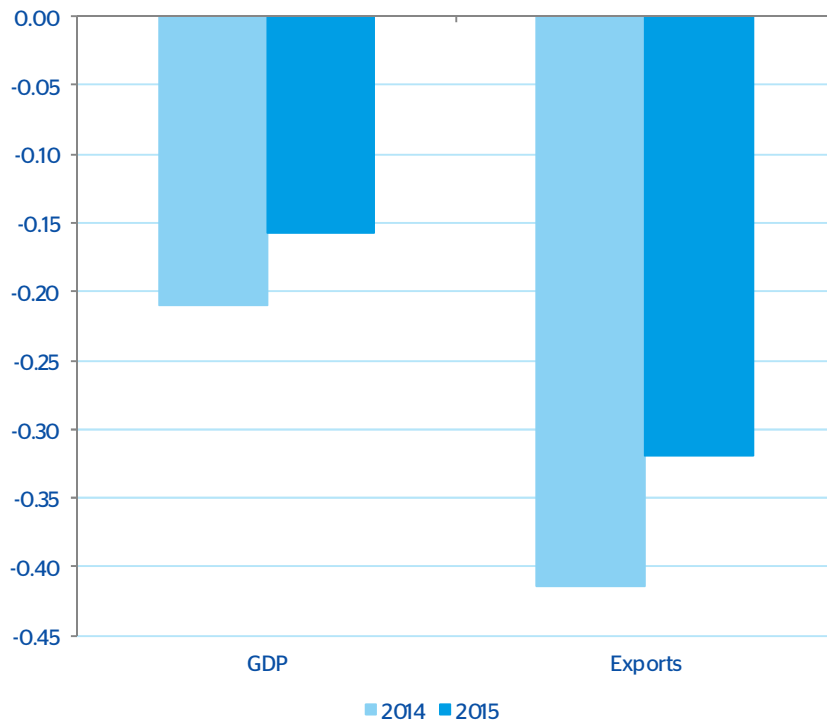
Confidence indicators were consistent with economic activity in the eurozone gaining traction, still led by Germany but also with a better outlook in the periphery



Positive external environment, but with doubts on the impact from both China and exchange rate

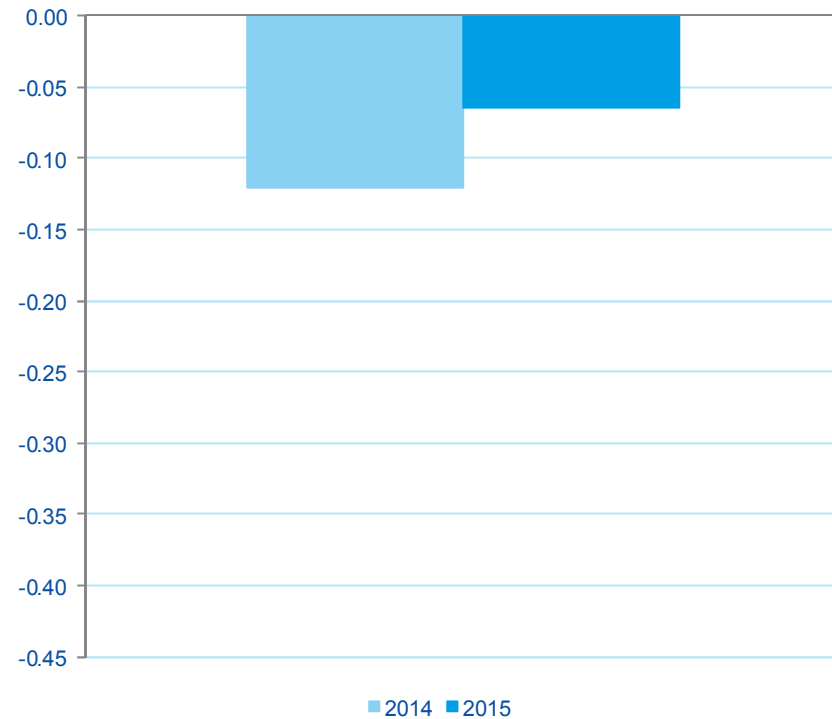
Impact of strong euro on GDP and exports* (pp)

Source: BBVA Research



Impact of strong euro on inflation* (pp)

Source: BBVA Research



* Estimated impact of new projection for the EURUSD (average 2014 = 1.35) vs previous projection, i.e EURUSD +4% higher than previously expected in 2014



BBVA

RESEARCH

Foreign Exchange Contact Group
6 May 2014

Contents

Financial markets

Macroeconomic outlook

Inflation expectations

Fragmentation and its impact on monetary policy: a comment on forward guidance

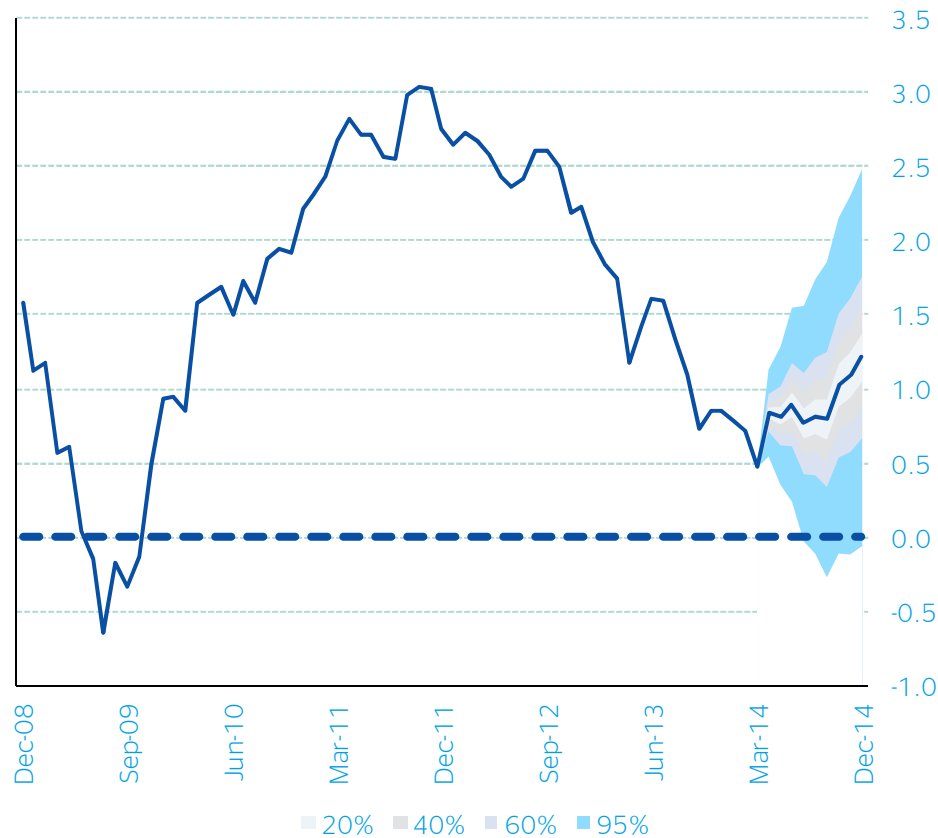
Some preliminary remarks on QE

Issues for discussion: challenges

Inflation: slow increase in the forecast horizon and narrow risk of deflation in our baseline scenario

Inflation in the eurozone: baseline scenario

Source: BBVA Research



The decline in headline inflation over 1Q14 accumulated in the more volatile components; core inflation remained stable

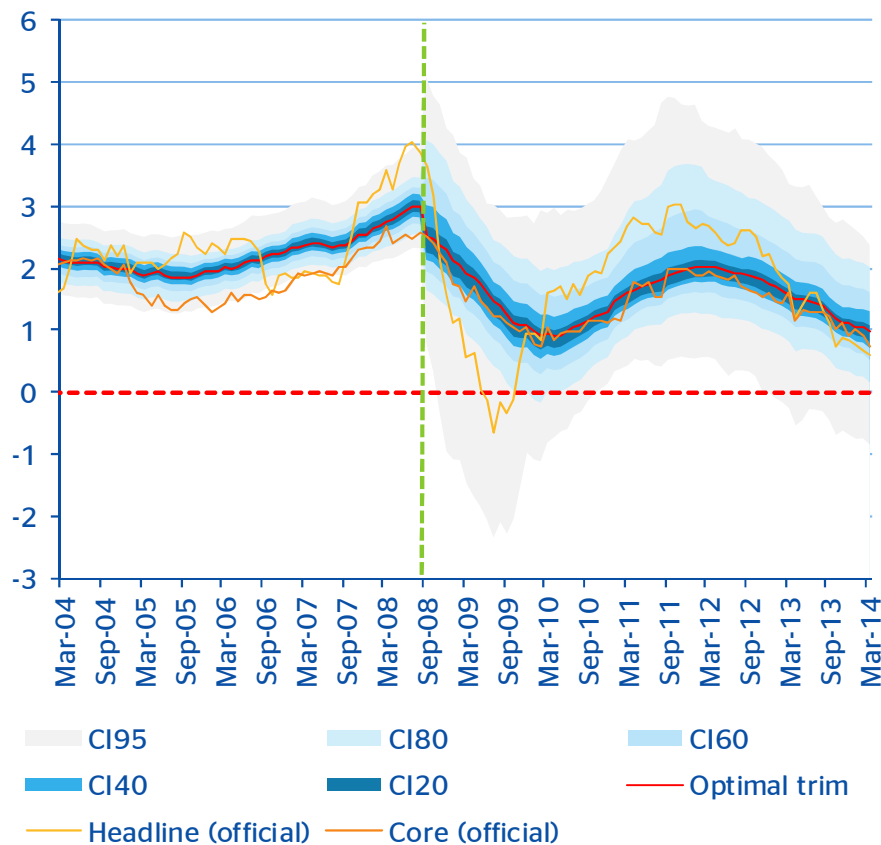
Downward pressures stem from the euro's appreciation and low raw material prices

The current recovery in demand, the muted financial stress and the repaired banking lending channel reduce deflation risks

Measuring trend inflation through alternative measures

Eurozone: inflation (% YoY)

Source: BBVA Research



Measuring trend inflation through trimmed-means, methodology

1. We compute 2,601 symmetric and asymmetric trimmed means for the EZ using the weighted distribution of the CPI subclasses (95 for EZ)

2. We then selected the “optimum” trimmed-mean based on its predictive capacity with respect to annualized mean inflation over a forecast horizon of 30 months

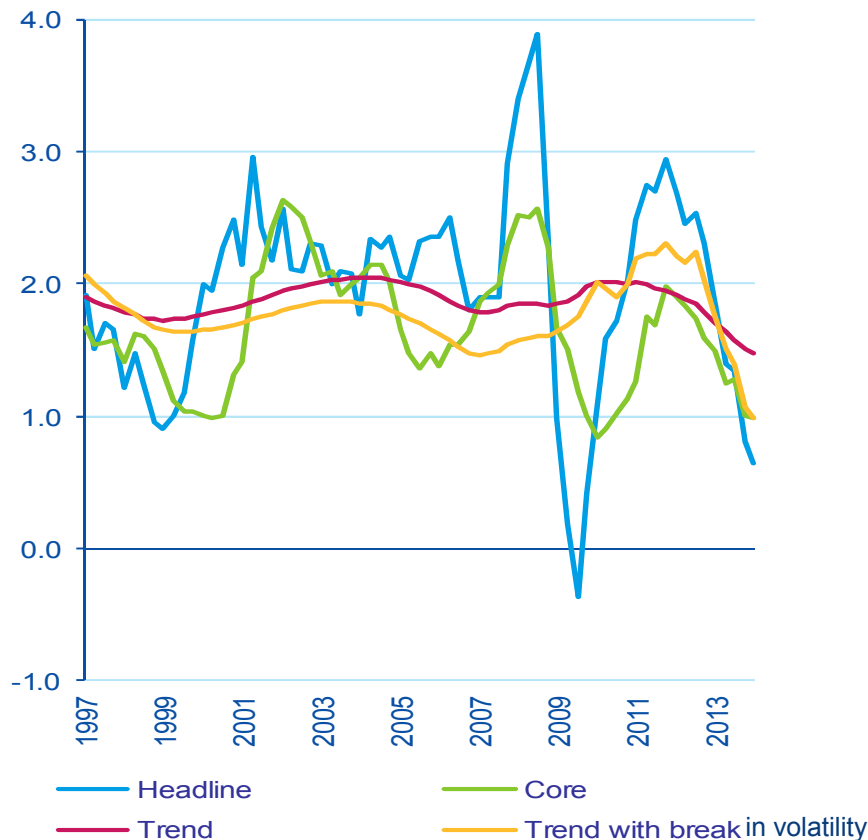
3. Finally, we constructed CI around the optimum trimmed-mean selected using the predictive capacity test proposed by Diebold and Mariano (1995)

Trend inflation in the EZ is trending downwards and currently is well below the target, at 1%.

Measuring trend inflation through alternative measures

Eurozone: inflation (% YoY)

Source: BBVA Research



Measuring trend inflation as a latent variable, methodology

1. The model is able to discriminate transitory from permanent deflationary episodes

2. Inflationary pressures are embedded in the performance of some macro variables (GDP, investment ratio, unemployment rate and inflation)

3. In the EZ the main caveat is the limited sample, which implies to take some assumptions: with and without variance change in inflation

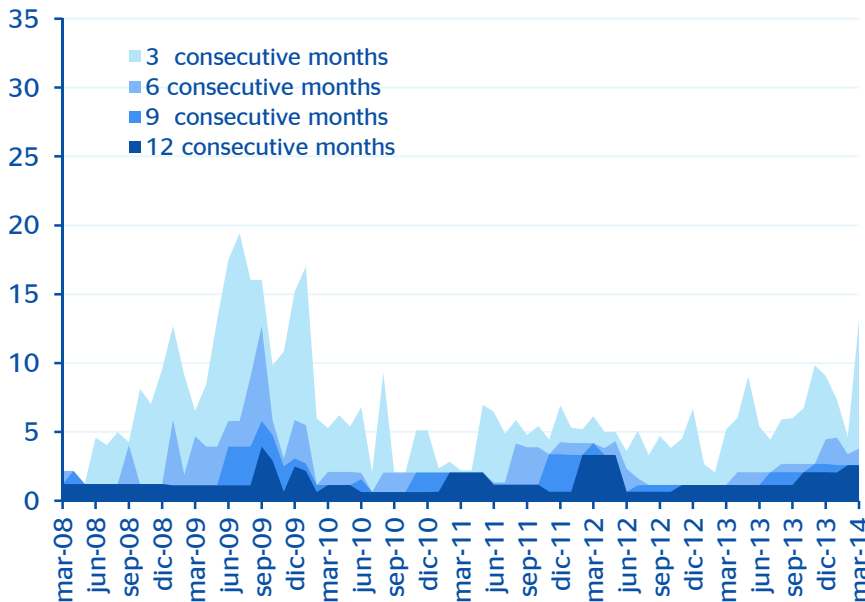
Trend inflation in the EZ is trending downwards (more rapidly if a break of inflation volatility is considered) and currently is well below the target, at 1.5% (or 1%).

Deflation probability is quite low in the EZ, but less so in the periphery

Eurozone: proxy for deflation risk

(% CPI items with persistently negative MoM swda growth rates)

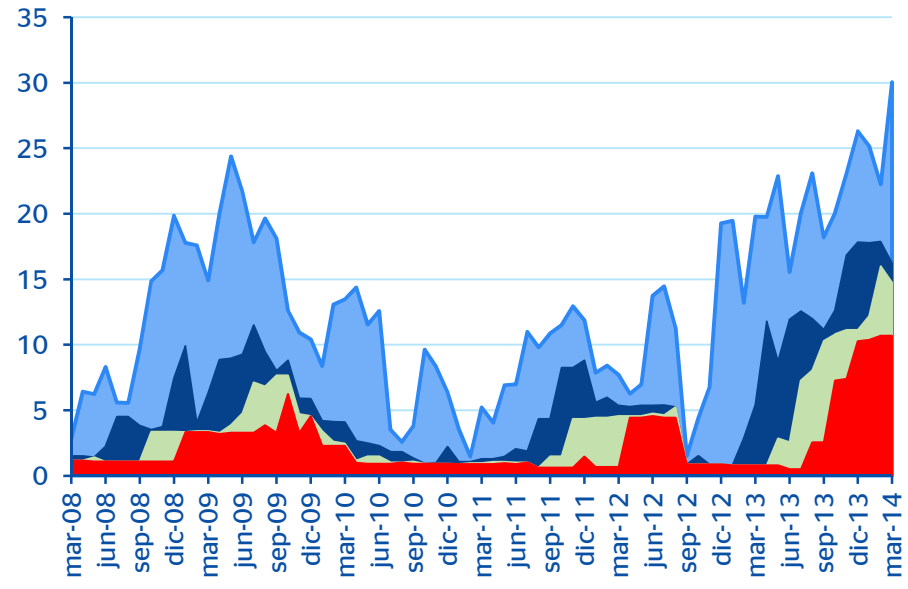
Source: BBVA Research based on INE



Spain: proxy for deflation risk

(% CPI items with persistently negative MoM swda growth rates)

Source: BBVA Research based on INE



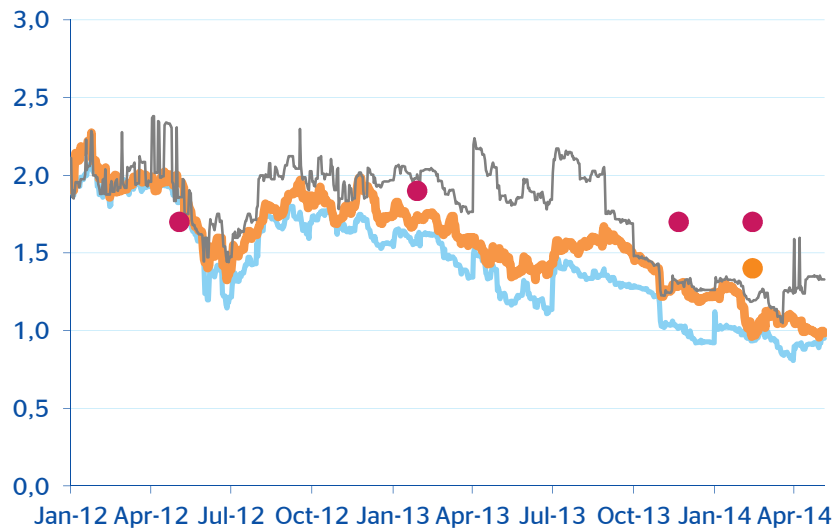
■ 3 consecutive months ■ 6 consecutive months
■ 9 consecutive months ■ 12 consecutive months

EZ: even though one should not read too much from these numbers, long-term inflation expectations are not low

- Short-term inflation expectations: quite sensitive to negative surprises in inflation.
- Long-term inflation expectations: more stable and above the target, but still trending downwards

2Y Inflation swap (spot rates %)

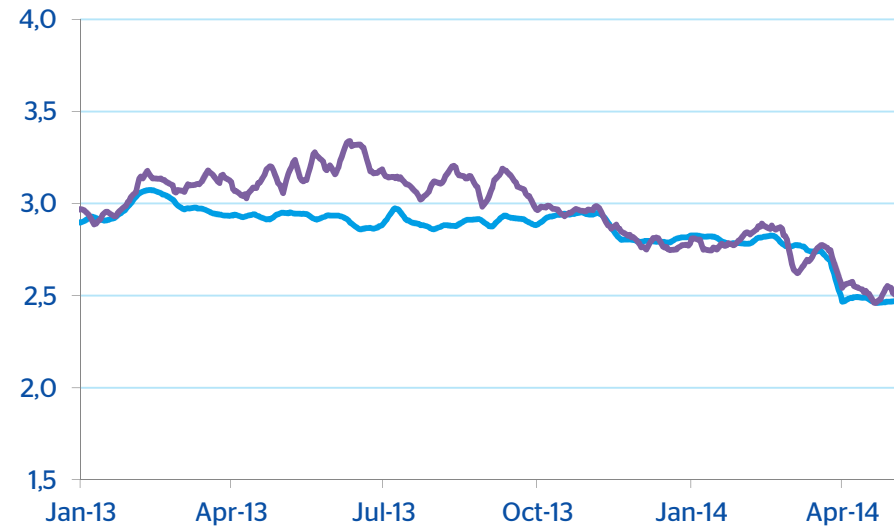
Source: Bloomberg, ECB and BBVA Research



— EU — FR — Ger ● SPF 2Y ahead ● SPF (2015)

Eurozone inflation expectations implicit in bond markets (%)*

Source: Bloomberg and BBVA Research



— 5Y5Y inflation Swap

— 2Y2Y inflation Swap

*GDP-weighted average of separately estimate breakeven rates for France and Germany

Inflation surprises affect short-term inflation expectations

A simple case study indicates that, on average, market-based inflation expectations react to surprises in inflation, a pattern that is more evident since 2013.

Impact on inflation expectations*

Change in five-day rolling average (daily data, bps)

Source: Bloomberg and BBVA Research

	Downside surprises on Inflation	Upside surprises on Inflation	Inflation surprises Statistical significance**
1Y infl. Swap	-7,2	-0,1	YES
2Y infl. Swap	-5,2	3,3	YES
3Y infl. Swap	-4,1	2,4	YES
1Y1Y fwd infl. Swap	-3,2	6,2	NO
2Y2Y fwd. infl. Swap	2,8	3,1	NO
5Y5Y fwd. infl. Swap	-0,1	-0,8	NO
5Y5Y fwd. Breakeven	2,8	3,0	NO

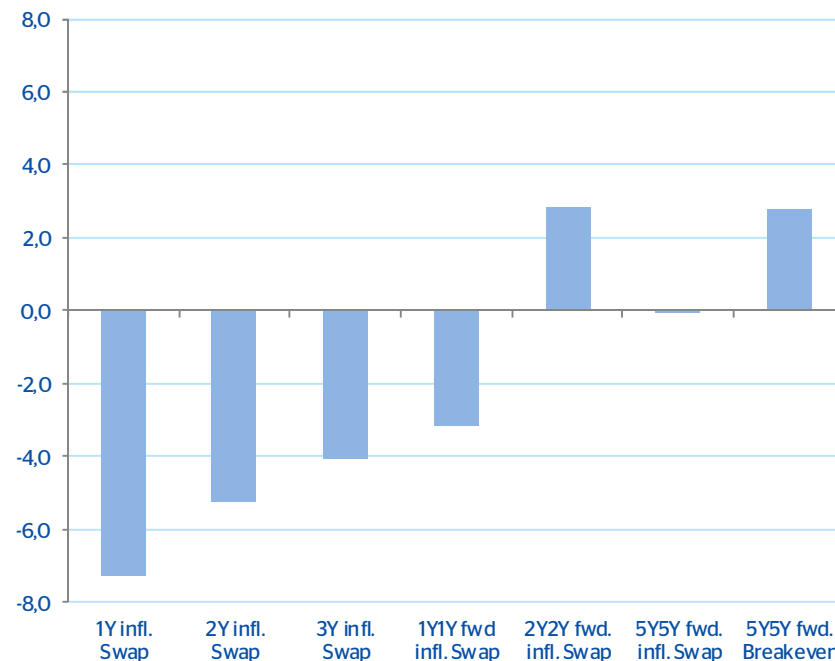
* Simple average of German and French inflation expectations. From Jan 2013 up to now.

** Significance largely driven by a small number of large surprises in inflation

Impact on Flash HCPI

Change in five-day rolling average (daily data, bps)

Source: Bloomberg and BBVA Research





BBVA

RESEARCH

Foreign Exchange Contact Group
6 May 2014

Contents

Financial markets

Macroeconomic outlook

Inflation expectations

**Fragmentation and its impact on monetary policy: a comment
on forward guidance**

Some preliminary remarks on QE

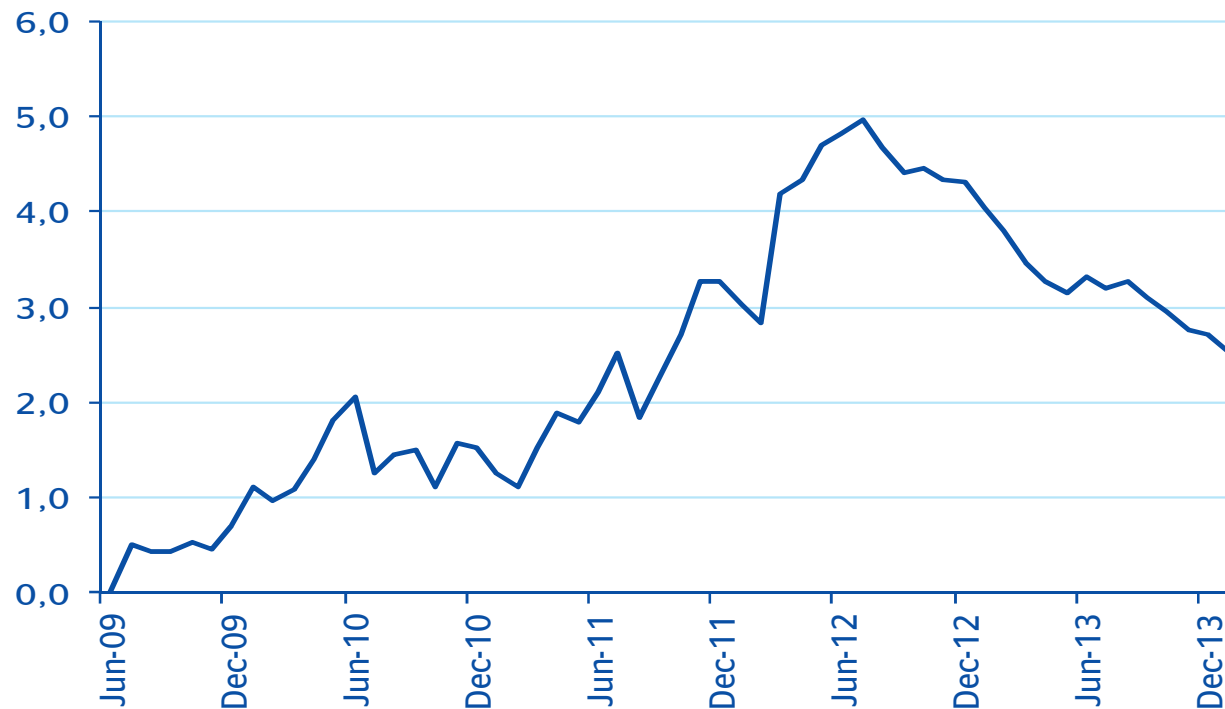
Issues for discussion: challenges



Fragmentation remains above pre-crisis levels. A fresh impulse is needed.

Composite measure of eurozone financial fragmentation*

Source: BBVA Research and Bloomberg



*For more details see Annex and <http://www.bbvaresearch.com/>

Fragmentation: implications for monetary policy.

Under “normal”
conditions

Conventional policy is less effective
as the monetary-policy transmission is curtailed.

It generates unwanted (asymmetric) risks

Under the zero-
lower-bound
restriction

Forward guidance (FG) seen as an “optimal
commitment device”
as there is no room left for conventional policy

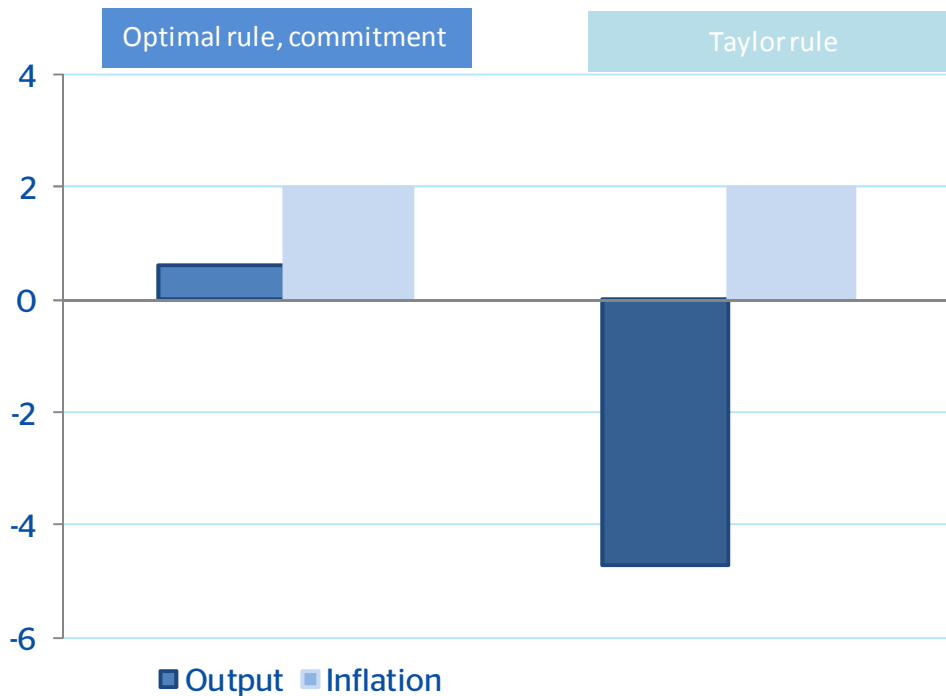
Does fragmentation affect FG?

Fragmentation calls for the strengthening of FG

Under models of optimal policy under commitment, fragmentation imposes the need for lower rates for a longer time: forward guidance should be reinforced.

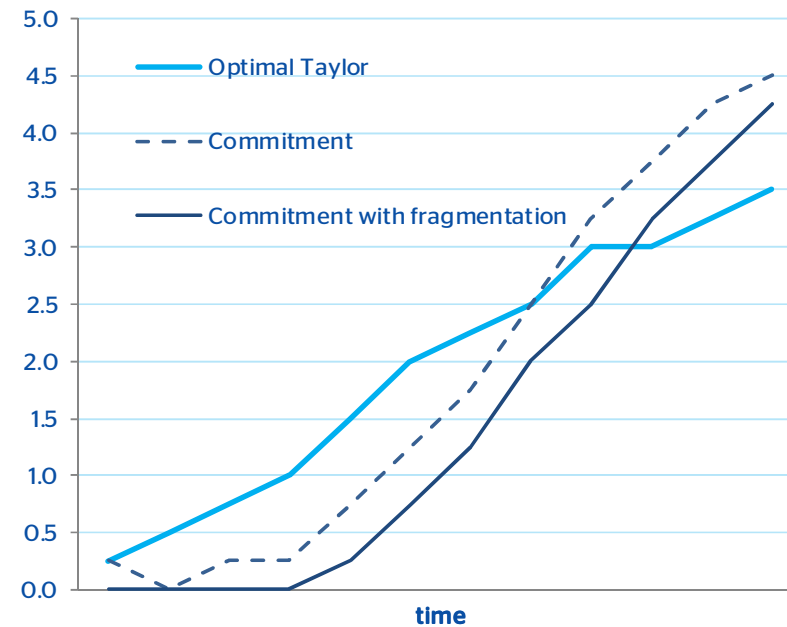
Output gains/losses and inflation in the medium term*

Source: BBVA Research



Interest rates under different policy rules

Source: BBVA Research



*Fragmentation is modeled by a lower interest rate elasticity in the IS curve

*Cumulative output gains/losses relative to equilibrium.

For more details see Annex and http://www.bbvarsearch.com/KETD/fbin/mult/140506_Europe_Economic_Watch_tcm348-448578.pdf?ts=1252014



BBVA

RESEARCH

Foreign Exchange Contact Group
6 May 2014

Contents

Financial markets

Macroeconomic outlook

Inflation expectations

Fragmentation and its impact on monetary policy: a comment on forward guidance

Some preliminary remarks on QE

Issues for discussion: challenges

QE: main channels by which QE may alter real rates

	Conclusions from recent experiences	Main caveats in the EZ
Signalling channel	QE announcements “postpone” date of first rate hike by around 4 to 6 months.	<ul style="list-style-type: none"> • Can it help reduce fragmentation? • How relevant is moral hazard? • Enough support?
Targeting channel	In QE1, it explained between 50% and 70% of the reduction in 10Y Treasury yields.	
Liquidity channel	The only channel to raise rates (liquidity premium).	
Credit channel	Large impact on riskier bonds , with a multiplier effect through the strengthening of the financial sector’s balance sheets.	
Inflation channel	QEs’ efficacy on this front remains a topic of heated debate.	

QE: heterogeneous impact on yields (from steady state).

Potential impact QE on (European) assets through different channels

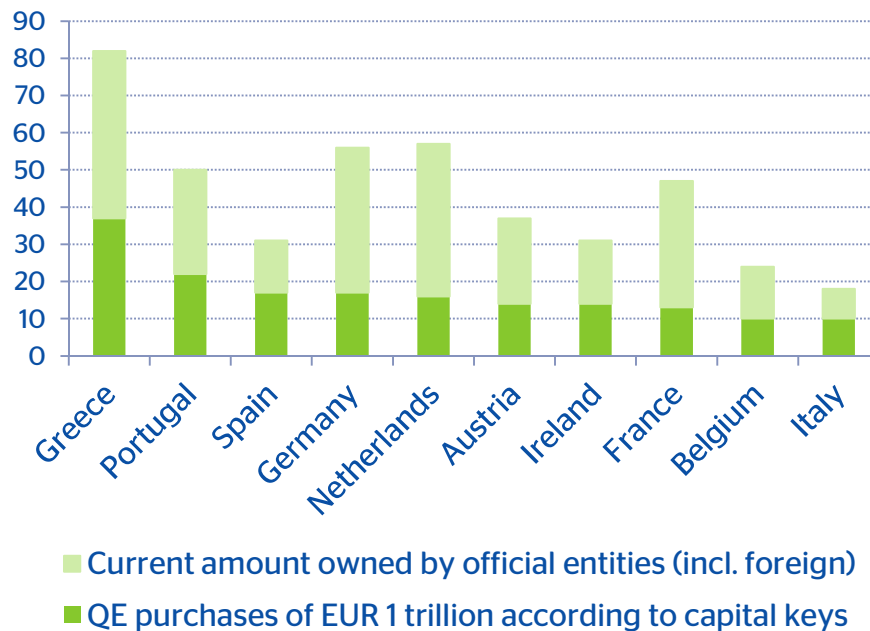
Source: BBVA Research

assets channels	12 Month interest rate	2Y bond yield Core	2Y bond yield Periph.	10Y bond yield Core	10Y bond yield Periph.	Corp. BBB	Corp. AAA
Signaling	0	--	--	0	0	-	-
Targeting	0	0	0	----	---	0	----
Liquidity	+/0	++	0	++	0	0	+
Credit	0	0	-	0	---	----	0
Inflation	0	-	-	0	0	-/0	-/0
RANKING 1: higher impact 6. Lower impact	6	5	3	4	1	2	3

QE simulation: impact would depend on size and composition of purchases.

- We estimate the impact on sovereign yields through a panel assuming that a one-trillion QE would only be used for buying government bonds according to ECB's capital key*.

Amount of 10Y sovereign bonds withheld by official entities.
(% of total outstanding)



Impact would be significant on peripheral bonds (reduction of around -60/200 bps), less so on the Bund.

Furhter impact on yields would also depend on how much of a surprise is the ECB announcement.

For any particular bond, the targeting channel grows in importance the more is purchased by the ECB (relative to its total amount outstanding).

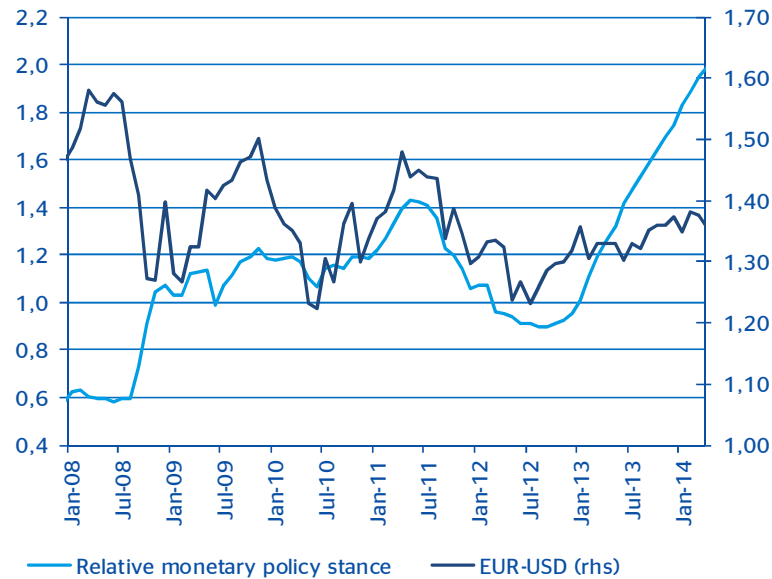
* For more details see Annex and <http://www.bbvarsearch.com/>

QE simulation: CB balance sheets have been an important driver of FX

- With short rates approaching the ZLB, central banks began to pursue less conventional monetary policies—including (QE)—to stimulate economic growth. This has led in to significant increase in their balance sheets which has have been an important driver (a significant variable in FX models) of currencies over recent years.
- If the ECB embarks in a QE of 1 trillion (one year time program and at the same time the Fed continues with the tapering) this would depreciate the euro by around 8%

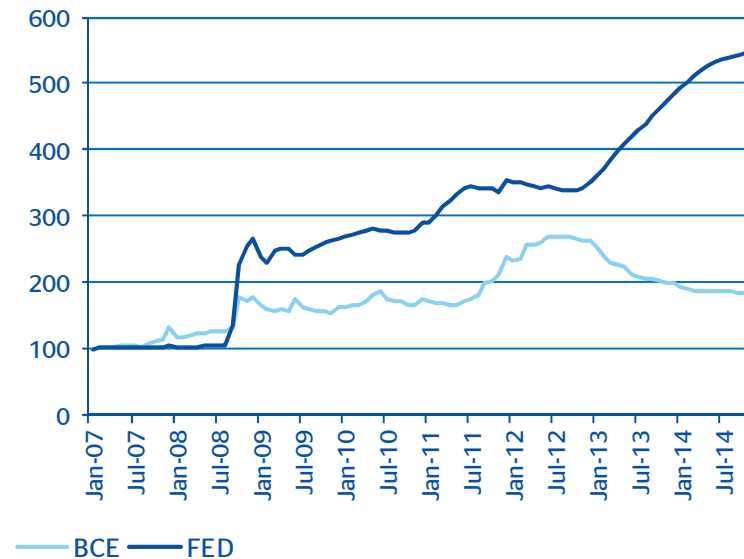
Relative monetary policy stance¹ vs EUR-USD

¹ Relation between Fed and ECB central bank assets, ratio Fed/ECB
Source: Bloomberg and BBVA Research



Fed and ECB balance sheet

Index Jan 2007=100
Source: Bloomberg and BBVA Research



* See Annex 3 for more details



BBVA

RESEARCH

Foreign Exchange Contact Group
6 May 2014

Contents

Financial markets

Macroeconomic outlook

Inflation expectations

Fragmentation and its impact on monetary policy: a comment on forward guidance

Some preliminary remarks on QE

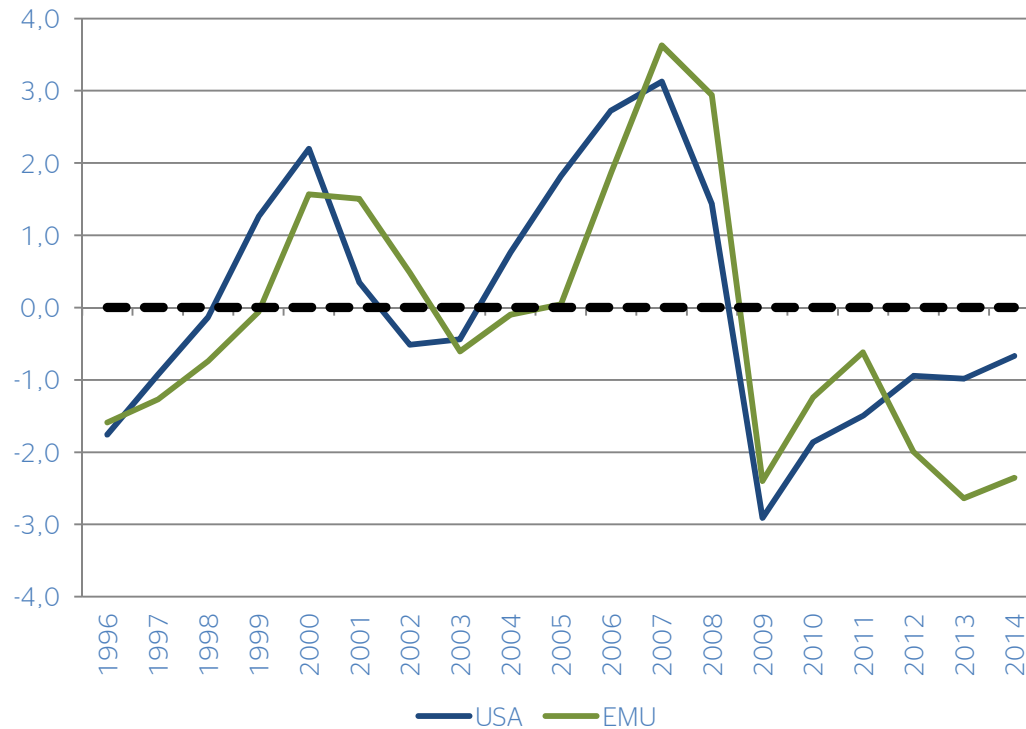
Issues for discussion: challenges



Challenges ahead: the eurozone cycle lags behind the US cycle

Output gap (% of Potential GDP)

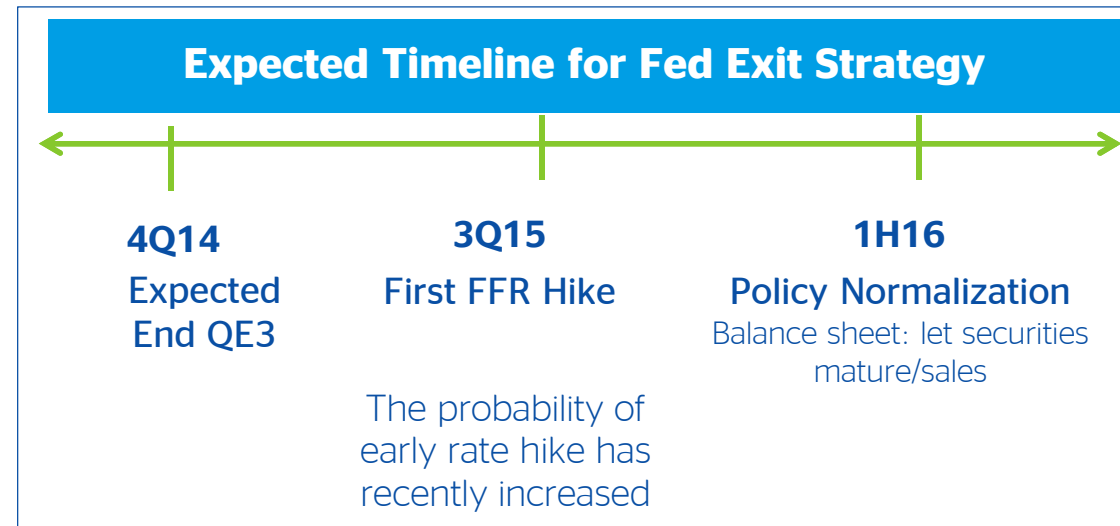
Source: BBVA Research



Challenges ahead: the Fed will eventually tighten

12-month ahead fed funds and 10-year Treasury yields

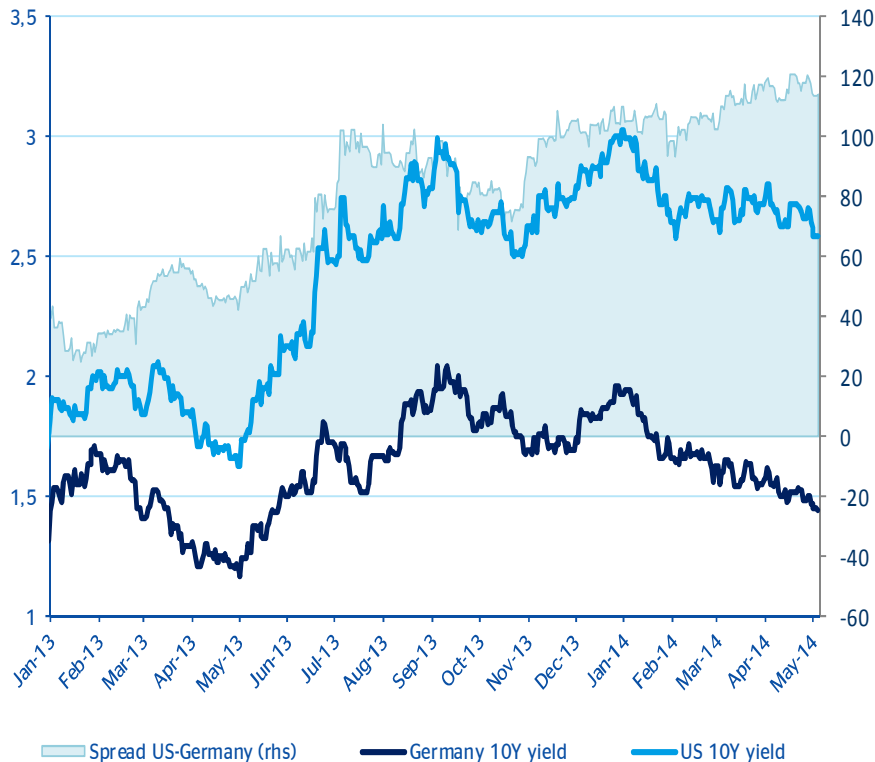
Source: Bloomberg and BBVA Research



Challenges ahead: will the EUR-rate decoupling persist?

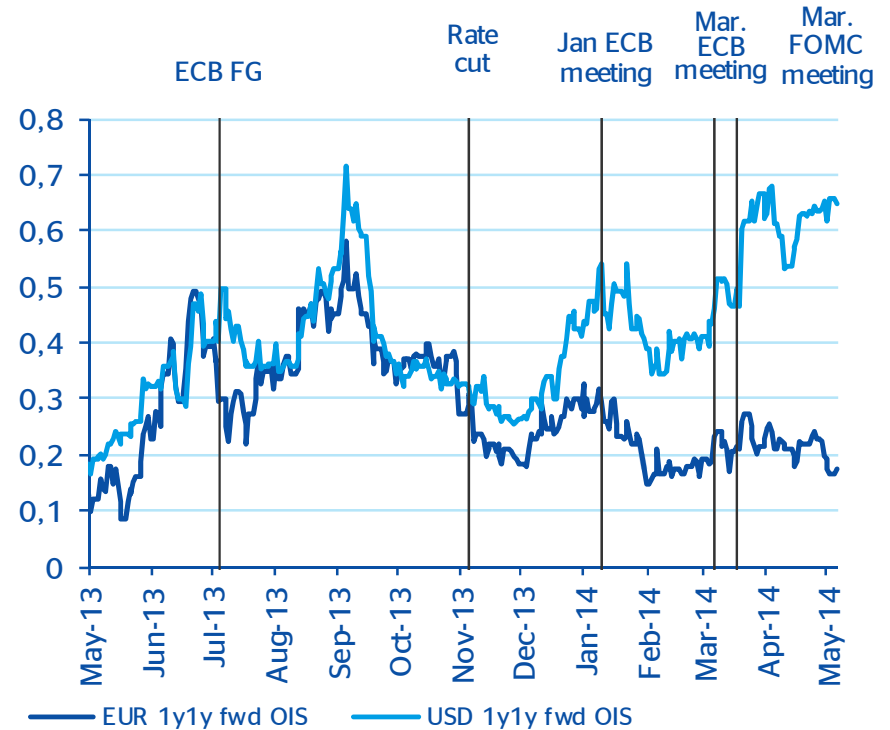
10Y bond yield: US and GER, %

Source: Bloomberg and BBVA Research



1y1y forward OIS in the EUR and USD markets

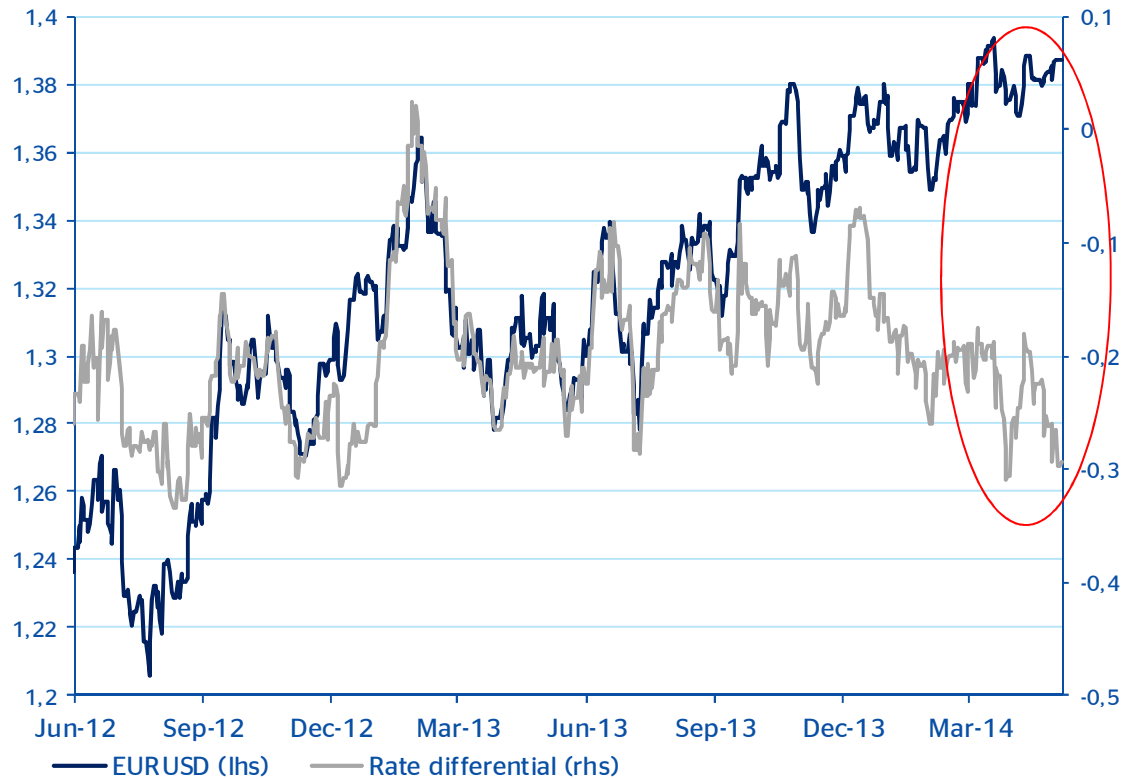
Source Bloomberg and BBVA Research



Challenges ahead: will the Fed's exit be enough to curb the euro strength?

2-year interest rate differential* vs EURUSD

* German Bunds - US Treasuries, %
Source: Bloomberg, EPFR and BBVA Research



Recent market developments.

Jorge Sicilia, Chief Economist BBVA

Foreign Exchange Contact Group

Frankfurt, 6 May 2014

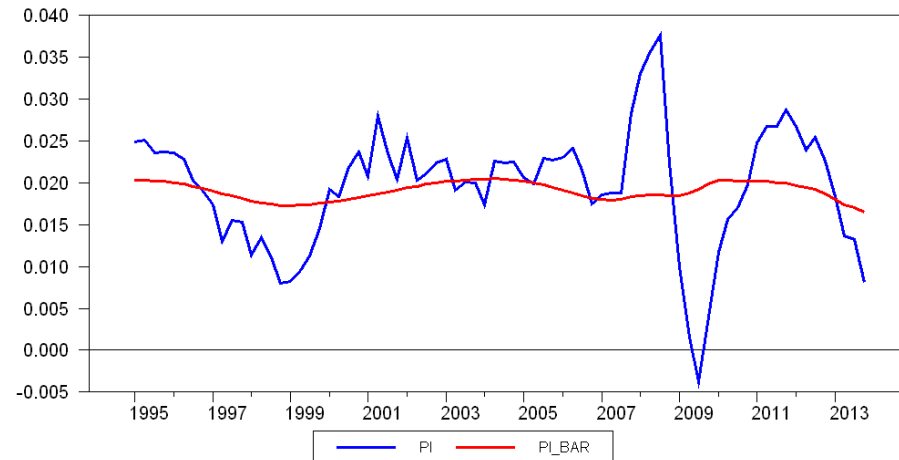
Annex 1: Measuring trend inflation as a latent variable

Results for Europe. No volatility breaks

Due to the limited sample, we estimate a model with none volatility breaks.

```
DLM - Estimation by BFGS
Convergence in 27 Iterations. Final criterion was 0.0000000 <= 0.0000100
Quarterly Data From 1995:01 To 2013:04
Usable Observations 76
Rank of Observables 297
Log Likelihood 1317.4923
Concentrated Variance 5.5057e-004
```

Variable	Coeff	Std Error	T-Stat	Signif
1. PHI_U	0.656675840	0.085056567	7.72046	0.00000000
2. BETA_X	-0.679675941	0.165404375	-4.10918	0.00003971
3. MU_PI1	0.631668389	0.065884436	9.58752	0.00000000
4. PHI_0	-0.210063876	0.040683286	-5.16340	0.00000024
5. BETA_Y1	1.231126294	0.216626628	5.68317	0.00000001
6. BETA_Y0	-0.069303323	0.236909599	-0.29253	0.76988091
7. ETA_Y	0.238879843	0.062039824	3.85043	0.00011791
8. THETA_1	0.948325331	0.021130490	44.87948	0.00000000
9. THETA_2	0.385501619	0.021588704	17.85664	0.00000000
10. GAMMA_Y	0.003615491	0.000434267	8.32550	0.00000000
11. SIG_NU_U	0.000181595	0.000268670	0.67590	0.49910235
12. SIG_NU_X	-0.010172746	0.004327531	-2.35070	0.01873792
13. SIG_OMEGA_GAMMA	0.025620424	0.010378429	2.46862	0.01356342
14. SIG_OMEGA_U	0.012883349	0.006042958	2.13196	0.03301008
15. SIG_OMEGA_X	0.014680209	0.005236606	2.80338	0.00505696
16. SIG_NU_PI2	0.009308235	0.005397659	1.72449	0.08461852



Annex 1: Measuring trend inflation as a latent variable

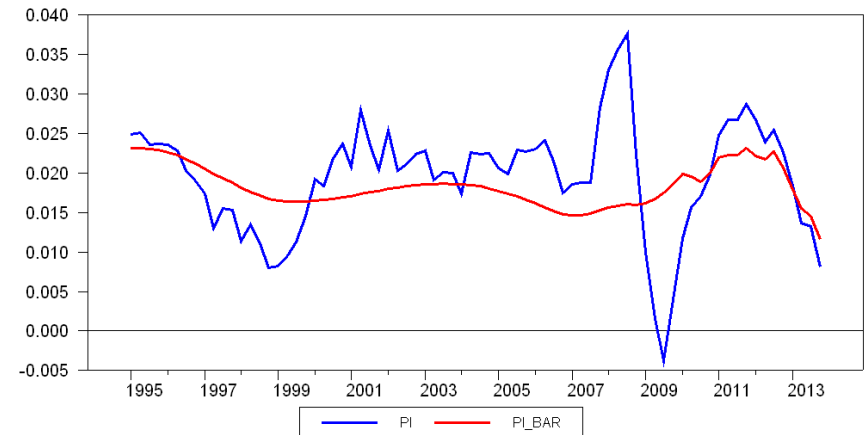
Results for Europe. Volatility breaks in inflation

We try to test and estimate a volatility break in inflation after the financial crisis.

```

DIM - Estimation by BFGS
Convergence in 2 Iterations. Final criterion was 0.0000000 <= 0.0000100
Quarterly Data From 1995:01 To 2013:04
Usable Observations 76
Rank of Observables 297
Log Likelihood 1309.6869
Concentrated Variance 1.3170e-003
    
```

Variable	Coeff	Std Error	T-Stat	Signif
1. PHI_U	0.626811352	0.036309212	17.26315	0.00000000
2. BETA_X	-0.220359969	0.073325199	-3.00524	0.00265370
3. MU_PI1	0.548779791	0.067969085	8.07396	0.00000000
4. PHI_0	-0.194138919	0.024525125	-7.91592	0.00000000
5. BETA_Y1	0.615486351	0.081020050	7.59672	0.00000000
6. BETA_Y0	0.166421302	0.082005132	2.02940	0.04241746
7. ETA_Y	0.203964105	0.046800230	4.35819	0.00001311
8. THETA_1	0.963710169	0.022925514	42.03658	0.00000000
9. THETA_2	0.343998809	0.029412153	11.69580	0.00000000
10. GAMMA_Y	0.003511292	0.000358076	9.80600	0.00000000
11. SIG_NU_U1	0.000075424	0.000036338	2.07564	0.03792728
12. SIG_NU_X1	0.000061393	0.000508807	0.12066	0.90396038
13. SIG_NU_U2	0.000055382	0.000094203	0.58790	0.55660205
14. SIG_NU_X2	0.001188461	0.001680238	0.70732	0.47936959
15. SIG_OMEGA_GAMMA	0.006901673	0.001657759	4.16326	0.00003137
16. SIG_OMEGA_U	0.003930774	0.000980551	4.00874	0.00006104
17. SIG_OMEGA_X	0.003772815	0.000873977	4.31683	0.00001583



With volatility break in inflation, the model modifies the signal/noise ratio

Annex 2: Fragmentation

Financial fragmentation index, BBVA Research

- In order to monitor the financial fragmentation in the euro area, we constructed a composite measure of euro area financial fragmentation. The advantage of utilizing such index is the ability to monitor, on a monthly basis, more accurately the evolution of financial fragmentation.
- The FFI is constructed using principal component analysis, a statistical method of extracting factors responsible for the co-movement of several variables. We assume that financial fragmentation is the primary factor influencing this co-movement, and by extracting this factor (the first principal component) we are able to create an index.
- The components are:
 - the interquartile range of euro area countries* two-year government bond yields ,
 - the cross-country dispersion (specifically, the coefficient of variation: the ratio of the standard deviation to the mean) of bank lending rates to corporates and households (average),
 - the gross liquidity provision by the Eurosystem as a share of bank assets, and
 - the Target 2 balances surplus.
- To combine these varied indicators**, we calculate a Z-score for each, and then estimate the first principal component of these Z-scores.

* Ireland, Spain, Germany, Italy, France, Netherlands, Portugal, Greece, Belgium, Finland and Austria.

** Data: monthly frequency. Sources: National Central Banks, ECB and Bloomberg

Annex 3: On forward guidance

A simple model (Clarida, Gali, Gertler*)

$$y_t = \vartheta y_{t-1} + (1 - \vartheta) E_t y_{t+1} + \sigma(r_t - E_t \pi_{t+1}) + e_{y_t}$$

$$\pi_t = \alpha \pi_{t-1} + (1 - \alpha) E_t \pi_{t+1} + \kappa y_t + e_{\pi_t}$$

$$r_t = \gamma_1 \pi_t + \gamma_2 y_t$$

$$dr_t = r_t + r_{t-1}$$

$$L = \lambda_0 \pi^2 + \lambda_1 y^2 + \lambda_2 dr^2$$

*Clarida, R., J. Gali and M. Gertler: *The Science of Monetary Policy: A New Keynesian Perspective*.

Additional literature:

- Campbell, J., C. Evans, J. Fisher and A. Justiniano: *Macroeconomic Effects of Federal Reserve Forward Guidance*.
- English W., J. Lopez-Salido and R. Tetlow: *The Federal Reserve's Framework for Monetary Policy--Recent Changes and New Questions*.
- Woodford, M.: *Methods of Policy Accommodation at the Interest-Rate Lower Bound*.

Annex 4: QE simulation

QE simulation on peripheral bonds (Arslanalp and Poghosyan*)

$$y_{i,t}^{10Y} = \underbrace{\alpha_i + \beta_1 y_{i,t}^{2Y} + \beta_2 g_{i,t} + \beta_3 \pi_{i,t} + \beta_4 D_{i,t}}_{\text{standard determinants of gov. bond yields}} + \rho CB_{i,t} + \gamma FIB_{i,t} + \lambda_t + \varepsilon_{i,t}$$

*Serkan Arslanalp and Tigran Poghosyan: *Foreign Investor Flows and Sovereign Bond Yields in Advanced Economies*

The paper employs a panel data methods to analyze the relationship between the foreign investor base of sovereign debt, and long-term sovereign bond yields in advanced economies (Aes*). The model uses a quarterly investor base dataset for 22 Aes over Q12004–Q32013. The specification includes the standard macroeconomic determinants of long-term sovereign bond yields (short-term bond yields, GDP growth, CPI inflation, Debt-to-GDP ratio).The paper also control for the domestic central bank purchases of government debt. In addition, they introduce the foreign investor base variable (breakdown in share of official foreign debt and the share of private foreign debt) as an additional determinant of long-term sovereign bond yields. Estimations are performed using the fixed effects estimator.

* Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Korea, the Netherlands, New Zealand, Portugal, Spain, Sweden, Switzerland, the United Kingdom, and the United States.