# Flows \& Assets Report A glimpse of hope after the new tantrum 

## Third Quarter 2015

## BBVA Research

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1. Key Messages
2. Portfolio Flows \& Asset Prices: stylized facts, drivers and now-casts
3. Scenarios: Macroeconomic and Monetary Policy and Flows Scenarios 4. Hot Topic:

- Market pricing of FX risk still unfinished

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## Key Messages

- Main drivers
- Global growth concerns led by China's slowdown and its unexpected RMB policy change bringing heightened risk offmood particularly to EMs.
- Global monetary policy easing bias (Fed's delay and gradualism, more supportive ECB and loosening China) prevents further deterioration: short recess in financial volatility at the end of the quarter.
- Portfolio Flows
- Strong flow reallocation away from EMs, notably from China and Latam. Little discrimination among EMs with the exception of Asia. EM flow slump retail investor - driven. Strong rotation to DM Equity. Bonds contracted globally.
- Global push forces drove the Q3-15 "EM tantrum" on a different nature than "Tapering" one. This one is global growth relapse \& risk aversion - driven while the previous was purely due to monetary policy uncertainty.
- High frequency data hint for moderate reversion of EM net flows since the end of Q3.


## - Asset prices

- Financial tensions in EM recede now after an episode of heightened tensions due the growth and policy uncertainty. Latam is underperforming.
- Risk premia: the stint of financial tension and worrying outlook brought a risk re-pricing (in some cases overshooting)
- FX: global factors weighted in all EM currencies depreciation local factors differentially contributed in Turkey and Brazil
- Equity: FX risk re-pricing, expected higher cost of capital and faltering growth slash earnings expectations and equity prices in Q3. But adjustments have made equity valuations attractive, specially in Europe.


## - Forecasts \& Analysis

- Baseline scenario carries a tilt to the downside for EMs flows. However, the recent policy support opens a possibility of a more supportive scenario.
- Global "cyclical" factors (China): important drivers for EM depreciations. Fed still relevant, specially in larger markets

Capital flows
Quarterly assessment

## Global growth concerns led by China brought a revival of the Taper Tantrum to EMs...

Cumulated Portfolio Flows to Emerging Markets using High Frequency Data
Update Oct. 28th Source: BBVA Research using nowcasts of BoP data


High Frequency Imbalance Assessment
(Deviations from Long Term Trend in \% )


Factors behind the huge net EM capital outflows: Fears on China slowdown \& commodity cycle, ahead of Fed tightening and amidst vulnerabilities in some major EM.

The current episode, "Just as the Fed tantrum times":
-15\% flow retrenchment in EMs from previous quarter levels (slump was $2 x$ forecasted in Q2-15)

The EM flows cumulate c.a. 30\% shortfall with respect to long run trend in Q3 2015 and a better outlook for non commodity exporters

## BBVA High Frequency Portfolio Flows Map

(\% monthly change in net liabilities measured as net flows to total assets under management)
Source: BBVA Research using nowcasts of BoP data. Updated October 28 ${ }^{\text {st }}$ )


Total Flows 3Q15 vs. 2 Q15
(\% quarterly change in flows, shades are previous values)

Outflows Inflows

0\%
$+2 \%>$
BBVA Research Portfolio Flows Map*
The Flows Map show the monthly evolution of net inflows with Darker blue colors representing sharp net outflows and lighter colors standing for net Inflows

Reallocation and
Flight to quality Flight to quality supported DMs

Eurozone enjoyed
from attractive valuations and soothing down Grexit fears

EM Europe caught in the weakening cycle

Commodity cycle and (idiosyncratic factors also weigh on the region)
Some Asian EMs enjoyed from Chinese Risk Diversification and a non commodity exporter nature

Global growth fears prompt a general flight to quality to the US Bonds (from retail investors). A resilient growth so far encourages portfolio rotation to DM Equity

## Capital flows by region: 4-week moving average

(country flows as \% of AUM) Source: BBVA Research using nowcasts of BoP data, Update October 28th


## Net Equity Flows Q3 2015*

(Dark blue are Net Outflows, Light Blue are Net Inflows in Q315)
Source: BBVA Research and using nowcasts of BoP data


# Global push forces drove this EM tantrum but the nature differs from the Tapering one: global growth and risk aversion relapse (now) vs. monetary policy uncertainty (then) 

## Emerging Markets Flows

(Median Emerging Market Portfolio Flow Decomposition, monthly change in \%) Source: BBVA Research using nowcasts of BoP data


## Emerging Markets Flows Drivers

(Median Emerging Market Portfolio Flow Decomposition, in \% change m/m)
Source: BBVA Research using nowcasts of BoP data


# Policy action stopped the bleeding in Q3 15. Additional monetary support by major Central Banks could revert EM outflows 

## BBVA Global Factor of Portfolio Flows Decomposition

(First Factor from Flows using BBVA's DFM/FAVAR Model represents the main driver of flows) Source: BBVA Research


Factors in Q3 2015

## Supportive monetary policy in Europe

The worsening of EM growth outlook continues to weigh on flows

## Risk-off mood at the global level explains the bulk of capital outflows

## Portfolio flows impaired on global risk aversion amid Chinese uncertainty

Factors in October 2015

[^0]Financial variables
Quarterly assessment

## The spike in financial volatility encouraged a risk-off mood. Global portfolios underweighted high-risk assets...

## BBVA Research Safe Haven Indicator

(Median Safe Haven Factor from flows and asset prices data using the BBVA DFM/FAVAR Model) Source: BBVA Research


BBVA Research Financial Stress Index
(normalized index)
Source: BBVA Research


## BBVA Safe Haven Indicator

Represents the median of the selected Safe Haven Components in Portfolio Flows, Risk
Preimia and FX data

Financial Tensions: the stint of heightened volatility receded on hopes on new Central Bank stimuli. Latam underperformed.

BBVA Research Financial Stress Index regional map.
Standard deviation $\approx(-1,1)$ Source: BBVA Research


BBVA Research Financial Stress Index
(normalized index)
Source: BBVA Research


Risk premia: financial tensions and flow contraction aligned with the re-pricing of risk. USD exposed countries suffered the most (Asia \& Latam vs.EM-Europe)

## BBVA Risk Premia (CDS) Change Map

(Change in risk premia in bps of 5Y CDS. Darker color stand for positive or higher risk premia Source: BBVA Research)


## 3Q15 Change Credit Default Swaps

(Change in risk premia in bps, shades represent last quarter change) Source: BBVA Research)


## Local factors play a major role on widening sovereign spreads. Differentiation...

EMs change in risk premia
(Median EM 5Y CDS MoM \% change) Source: BBVA Research


Risk Premium Change in Turkey and Factors
Source: BBVA Research


## Risk Premium Change in Mexico and Factors

Source: BBVA Research


## Bringing even some overshooting in the pricing of risk for many markets (according to fundamentals).

## CDS and equilibrium risk premium

(Source: BBVA Research, Equilibrium: average of four alternative models + 0.5 standard deviation)


Equilibrium range


FX: generalized USD appreciation remains but at slower pace on Fed gradualism. No further shocks (the RMB regime change -like) to set EM currencies on free-fall again anytime soon

## BBVA Exchange Rate Map

(Monthly variation of exchange rates vs. USD in \%. Darker is depreciation)


FX 3Q15 vs 2Q2015 change in \%
(shades are last quarter's cum FX change)


Singapore

Sharp Currency Depreciation (below -6 \%) Strong Currency Depreciation (between -3 \% and -6 \%) Moderate Currency Depreciation (between 0 and -3 \%) ModerateCurrency Apreciation (between 0 and $3 \%$ ) Strong Currency Apreciation (between 3 \% and 6 \%) Sharp Currency Apreciation (greater than 6 \%)

BBVA Research Exchange Rate Map
(Darker Zones are negative variations but here it means depreciations)

## The Euro appreciates on the back of its role for funding. Global factors still dominate EM currency dynamics...

## FX Change Decomposition in Developed and Emerging Markets

(in \% MoM change, negative are depreciations)
Source: BBVA Research


(*) Measured as median \% MoM change from the following Emerging Economies; Turkey, Poland Czech. Rep., Hungary, Russia

## ...But idiosyncratic factors still make a difference in certain markets

FX Change Decomposition in Emerging Markets (in \% MoM change, negative are depreciations)
Source: BBVA Research


Turkey (Lira)


September: +4.5\% appreciation USD/M\$
+4\% global appreciation of the USD +0.5\% local depreciation of the M\$
+8\% appreciation USD/TL in 09/2015
+4\% global appreciation of the USD +4\% local depreciation of the TL

Equity: FX risk re-pricing, expected higher cost of capital and faltering growth slash earnings expectations and equity prices in Q3 across the board and specially in DMs

## BBVA Equity Price Map

(Monthly Variation of Equity Price Indexes in \%)


Sharp Equity Price Contraction (below -6 \%)
Strong Equity Price Contraction (between -3 \% and -6 \%
Moderate Equity Price Contraction (between 0 and -3\%
Moderate Equity Price Expansion (between 0 and 3 \%)
Strong Equity Price Expansion (between 3 \% and 6 \%)
Booming Equity Price Expansion (greater than 6 \%)

Q3 2015 Equity price changes (\% QoQ)
(shades are last quarters QoQ change)


Yet this might be reversing on macro hopes (DMs) and attractive valuations (DM is close to fair value after the correction)

## BBVA Assessing Equity Market Misalignment Composite Indicator

(Weighted average, of PER 12months Forward, PER12months Trailing and P/B Ratios) updated October 14th


## Shocks

 Vast array of possible shocks with global reach via real, financial and confidence channels. Some Known unknowns (such as the degree of international fx leverage or new RMB maneuvers) could amplify these shocks

Shock definition

Financial disruption (equity bubble burst, contagion liabilities SOE to Banking sector, etc.) with impact on domestic activity: sharp slowdown despite policy support


I. Financial: spike of volatility, in
particular, sharp rebound in EM risk
premia\& FX depreciations
II. Economic: intense commodity prices relapse \& global trade slowdown
I. Financial: rebound of financial tensions in neighbors, with potential spillovers to countries with trade\&financial links
II. Economic: focus on countries affected by the conflict. Potential increase of oil prices if conflict impacts on its supply

## I. Financial: increase of global risk

 aversion \& funding constrains across the board. Huge EM capital outflowsII. Economic: synchronized activity adjustment, more intense in those sectors dependent on debt funding


EM commodity exporters (LatAm), China's trade partners (other Asian countries and USA) and EM countries with a vulnerable external position (Turkey)


Countries with close trade links with EMU (EM Europe) and/or US (Mexico)

Net oil importers (mainly, Europe) and EM Europe

EM with a more vulnerable external position (FX debt \& current account deficit) as, for example, Turkey and Colombia

## Scenarios:

 All our flow scenarios carry a tilt to the downside for EMs. Recent policy support however (ECB, Fed delay, BoJ comments) opens a possibility of a more supportive scenario for EM portfolio flows.(1) Baseline under the new MP support Source: BBVA Research -FAVAR Model

## Global growth

Gradual yet subpar global recovery supported overly by DMs

## Global monetary policy

Reinforced easing in DM anchors long rates at low levels. DM policy divergences remain but less than before

## Global risk aversion

Resilient at the current levels EM
high risk premia corrects only slightly
(2) Mild Global Risk non credible support Source: BBVA Research -FAVAR Model

## Global growth

China triggered correction of EM growth continues reinforces from global failed recovery (DM)

## Global monetary policy

Reinforced easing in DM but less room to maneuver in EM to support the cycle preventing capital outflows

## Global risk aversion

Heightened risk aversion globally
(in particular in EM) surging
financial tensions
(3) Positive Market Reaction to MP Support Source: BBVA Research -FAVAR Model

## Global growth

Gradual yet subpar global recovery supported overly by DMs

## Global monetary policy

Reinforced easing in DM anchors long rates at low levels. Supporting a soothing of financial volatility

## Global risk aversion

Policy support soothes financial volatility and Global Risk Aversion. EM risk premia correct gradually

# Baseline Scenario Reallocation continues from EM to DMs. Emerging Market flows steadily below long term trend 

BBVA Baseline Scenario of Portfolio Flows
(\% monthly change in net liabilities measured as net flows to total
assets under management) Source: BBVA Research using nowcasts of BoP data


## Baseline Market \& Macro Scenario

Source: BBVA Research -FAVAR Model

## Global Growth

+3.6 pp in 2016-17 avg.
+2.3 pp DM
+4.8 pp EM

## Global Monetary Policy

After the ECB unexpectedly pre-announced a further easing we now
expect the ECB to act in December by extending its asset purchase
program by six months. This forced a downward revision in our forecast
for 10 Y yields
2.51 pp \& 3.21pp 10y T-note in 2016 \& 2017 EoP
1.00 pp \& 1.3 pp10y Bund in 2016 \& 2017 EoP

## Global Risk Aversion

Stable VIX at 18 points 2017 EoP
EMBI resiliently high at 4.4 pp 2017 EoP

Mild Global Risk Scenario Global portfolio retrenchment with strong impact on EMs. Reallocation accelerates

BBVA Mild Global Risk \& Portfolio Flows
(\% monthly change in net liabilities measured as net flows to total
assets under management) Source: BBVA Research using nowcasts of BoP data

| Outflows | Inflows | BBVA Research Portfolio Flows Map* |  |
| :--- | :--- | :--- | :--- |
| $\mathbf{< - 2 \%}$ | $\mathbf{0 \%}$ | $\mathbf{+ 2 \%} \mathbf{~}$ | The Flows Map show the monthly evolution of net inflows with <br> Darker blue colors representing sharp net outflows and lighter <br> colors standing for net Inflows |

Mild Global Risk Macro Scenario
Source: BBVA Research -FAVAR Model

## Global Growth

+2.2 pp in 2016-17 avg. (-1.1 pp below baseline)
+2.2 pp DM (-1.1 pp below baseline)
$+3.3 \mathrm{pp} \mathrm{EM} \mathrm{(-1.6} \mathrm{pp} \mathrm{below} \mathrm{baseline)}$

## Global Monetary Policy

2.10 pp \& 2.810 y T-note in 2016 \& 2017 EoP ( -70 pbs) 0.80 \& 1.5 pp 10y Bund 2016 \& 2017 EoP ( -85 pbs)

## Global Risk Aversion

VIX Increases at 21 points in 2017 EoP
EMBI surges to 5.5 pp in 2017 EoP

# Supportive DM Monetary Policy \& Volatility Ease Scenario 

 Global portfolio flow recovery on a purely financial and sentiment recoveryBBVA Supportive MP \& Portfolio Flows
(\% monthly change in net liabilities measured as net flows to total
assets under management) Source: BBVA Research using nowcasts of BoP data


Supportive Monetary Policy Macro Scenario
Source: BBVA Research -FAVAR Model

## Global Growth

+3.6 pp in 2016-17 avg.
+2.3 pp DM
+4.8 pp EM

## Global Monetary Policy

2.51 pp \& 3.21pp 10 y T-note in 2016 \& 2017 EoP 1.00 pp \& 1.3 pp10y Bund in 2016 \& 2017 EoP

## Global Risk Aversion

VIX reduces to 16 points in 2017 EoP
EMBI falls to 3.5 pp in 2017 EoP

| Outflows | Inflows | BBVA Research Portfolio Flows Map* <br> The Flows Map show the monthly evolution of net inflows with |
| :--- | :--- | :--- |
| $<\mathbf{< - 2 \%}$ | $\mathbf{0 \%}$ | $\mathbf{+ 2 \%} \mathbf{>}$ | | Darker blue colors representing sharp net outflows and lighter |
| :--- |
| colors standing for net Inflows |

Though scenario options for global flows are increasingly biased to the downside (with varying degrees of intensity), the possibility of modest recovery emerges in the event of credible coordinated policy action

## Scenario Conditional Flow Paths for EMs

(Baseline and alternative scenarios)
Cumulative \% variation of portfolio Flows, forecast as of October 2015) Source: BBVA Research


## Scenario Conditional Flow Paths for DMs

(Baseline and alternative scenarios)
Cumulative \% variation of portfolio Flows, forecast as of October 2015)
Source: BBVA Research

ot Topics
The price of FX exposition

## Uncertainty persists on the back of the Fed and China (albeit with different relative importance in each economy).

Estimated decomposition of EM FX depreciation linked to Fed's expectations and China's uncertainty (accumulated since Jan 2013)


Global "cyclical" factors (led more recently by China) have been an important driver for most EM depreciations yet the Fed remains relevant, especially for larger markets.

Daily variations of each currency (in logs) are regressed against its most relevant global indicators, always including the daily variations of both the DXY (in logs) and the 12M Fed funds (as a proxy of core factors affecting the USD, especially the Fed's expected policy). We also include the daily changes in commodity prices (logs, particularly oil and copper) as a proxy of markets' expectations about China. Factors are very significant for all the six currencies analyzed. The graph shows the relative accumulated impact of core/Fed factors on the one hand and China's factors (as defined) on the the other.

Information

## Methodology and Interpreting the Results

## A Dynamic Factor Model / Factor Augmented VAR to analyze and forecast flows and asset prices

Our framework is based on the belief that there are unobservable factors or channels that act at the global (GLOBAL), regional (Developed (DM), Emerging (EM) and Safe Havens (SH) and idiosyncratic (I) transmitting from the global macro economy to flows or asset prices. The origin of these shocks can be created due to monetary policy in DMs, expected growth differentials between DMs and EMs and the differential risk aversion levels arising between the latter two.

To model the behavior between flows and asset prices and these global shocks via the described channels we use a two step approach based on a Dynamic Factor Model (DFM) and its interaction to a Factor Augmented Vector Autorregresion (FAVAR)

In the first part of the model, the "Dynamic Factor Model of Portfolio Flows and Asset Prices", we use a version of a Dynamic Factor Model. Our set-up comprises a measurement equation block (1) and a state equation block (2). Both blocks together build the so called State Space Model. In this, the measurement equation block relates each observable portfolio flow in the ( Y ) matrix to several unobservable "states" or latent factors (F) with varying intensities according to the estimated parameters of each flow.

In the second part of the model the "Factor Augmented VAR (FAVAR) model" we state the relation of the extracted factors with a set of macroeconomic variables in the form of a VAR structure allowing time dynamics between the three elements of the analysis: factors, macro and flows/assets.

We have chosen a set of macro variables so that the extracted factors carry strong statistical relations to the global financial cycle represented here with the EUR and US long-term rates that proxy the term premium. Also, factors and these latter variables carry strong links to the Global Risk Aversion and the Differential Risk Aversion to Emerging Markets (here gathered with the VIX and the EMBI respectively as in Rey 2012). Lastly we have analysed the relation of these variables and variables that proxy growth and growth differentials between developed and emerging markets (here as the G7 and great -EM median GDP Q/Q growth rates).

The model is estimated by means of maximum likelihood with Bayesian techniques and a prior that leverages more in the recent past in order to gauge the recent events.

Factors are forecasted conditional to the evolution of macro economic variables following the scenarios described bellow and flows are recovered back from the forecasted factors by means of the estimated measurement equation block (1) described above.

## The BBVA_PM: a two step DFM/FAVAR model

(1) The Dynamic Factor Model (DFM) to extract flows (and asset prices) factors

1 Measurement Block Relates Factors (Ft) and Flows (Xt)

$$
x_{t}=\mu+\Lambda f_{t}+\xi_{t}
$$

2) Transition Block allows for flows (Ft) dynamics as AR

$$
f_{t}=\Phi_{1} f_{t-1}+\ldots+\Phi_{p} f_{t-p}+\varepsilon_{t}
$$

The Noise to Signal Ratio is maximized, errors are iid. The process is estimated using a Kalman Filter

Flows assumed to conceal a structure of latent factors ( $\Lambda$ ) (Global, Regional and Idiosyncratic), Each factor is orthogonal and follows an $\mathbf{A R}(\mathbf{p})$ process ( $\phi(\mathrm{L})$ ).
$\operatorname{PF}(t) i=\beta 1 i * G l o b a l(t)+\beta 2 i * E M E(t)+\beta 1 * \mid D I O(t) i+U(t)$ (emerging)
PF(t) $)=\beta 1 j * G \operatorname{lobal}(t)+\beta 4 i * \operatorname{DME}(t)+\beta i * 1 D I O(t) i+U(t)$ (developed)
$\operatorname{PF}(t) j=\beta 1 j * G \operatorname{lobal}(t)+\beta 44 * \operatorname{DME}(t)++\beta 5 i * S H(t)+\beta i * \operatorname{DIO}(t) i+U(t)(S H)$
(2) Factor Augmented Model (FAVAR) to combine Macroeconomic variables and factors and Variables

$$
\left.\left[\begin{array}{l}
\boldsymbol{Y}_{\boldsymbol{t}} \\
\boldsymbol{F}_{\boldsymbol{t}}
\end{array}\right]=A(\boldsymbol{L})\left[\begin{array}{l}
\boldsymbol{Y}_{\boldsymbol{t}-1} \\
\boldsymbol{F}_{\boldsymbol{t}-1}
\end{array}\right]+\boldsymbol{\eta}_{\boldsymbol{t}} \quad \mathrm{F}=\left\{\boldsymbol{F}^{\boldsymbol{S F}}, \boldsymbol{F}^{D M}, \boldsymbol{F}^{E M}, \boldsymbol{F}^{\boldsymbol{G}}\right\}\right\}
$$

Exploiting time relations between the extracted latent factors and a set of selected global macro variables (2) and recovering flows by means of the measurement equation block in the DFM


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[^0]:    Are recent signals of additional monetary policy support (potential delay in Fed's lift-off, easing bias by ECB\& BoJ and interest rate cuts in China) in a context of better outolook for China... Enough to revert EM outflows ?

