BBVA Research

Global Funds Outlook

More challenging times as volatility and rates normalise

April 2018

Creating Opportunities

Executive summary

- In 1Q18, Global Investment Funds (GIF) attracted sizable fresh flows conditioned by the good performance of January. Yet flows moderated in the two later months as financial volatility surged and the threat of protectionism strengthened

- The bulk of flows retrenchment was concentrated in DM equity funds. EM as a whole, supported by still-benign funding conditions (credit markets) and steady global growth, outperformed relative to past episodes of similar financial volatility (as EM flows have been historically correlated with global volatility)

- Our analytical tools show that this volatility episode was different. Unlike previous episodes, financial spillover has been moderate, the economic outlook remained strong and investors' mood just turned to "neutral" -far from risk-off or safe-haven dynamics-. Two favorable factors (economic cycle and commodity prices) probably helped to offset the spike in global volatility. That said, according to our model based only on fundamental factors, those strength were not enough to explain the acceleration of EM inflows in 1Q, leaving us with reasonable doubts about their sustainability

- The financial outlook is certainly challenging for EM as volatility and interest rates "normalize" in a context of high debt levels. The continuation of the global economic momentum remains a key support for ongoing strong flows. Regardless, some reversion is expected nonetheless. Two particularly worrisome risks to the outlook are the possibility of protectionist measures or a faster-than-expected Fed normalization path

Global Investment Funds (GIF)

We analyse EPFR data on global fund flow over the quarter:

- to track asset volumes,

- to describe net reallocations across regions and asset types

- to identify common factors underlying those dynamics

In 1Q18, GIFs continued to attract sizeable fresh inflows. The quarter is largely influenced by the bulk of inflows in January

GIF flows across countries in 1Q18: common vs idiosyncratic factors
(monthly change, average of 1Q18, % AUM)

1Q18: 64% Global / 36% Idiosyncratic

4Q17: 53% Global / 47% Idiosyncratic

■ Global ■ Idiosyncratic

*All comparative inferences across countries are based on inflows relative to each country's total assets under management (AUM). They are NOT based on actual USD flows, which tend to be significantly larger for the US than for any other economy
Source: BBVA Research, EPFR

- GIF registered substantial inflows early in the year, favoured by global tailwinds that whetted investors' appetite. However, as the year has progressed, increasing global concerns and consecutive episodes of volatility have led to a moderation, particularly for Developed Markets (except Japan)

- So far, the overall picture still shows a favourable positioning of Emerging Markets vs DM

- On the assets side, the bulk of the retrenchment in inflows was concentrated in DM equity funds. The rebound in long-term interest rates has also dragged down inflows to bond funds

The positive dynamics of fund flows are cooling down. Inflows to GIFs fell sharply after the "VIX tantrum"
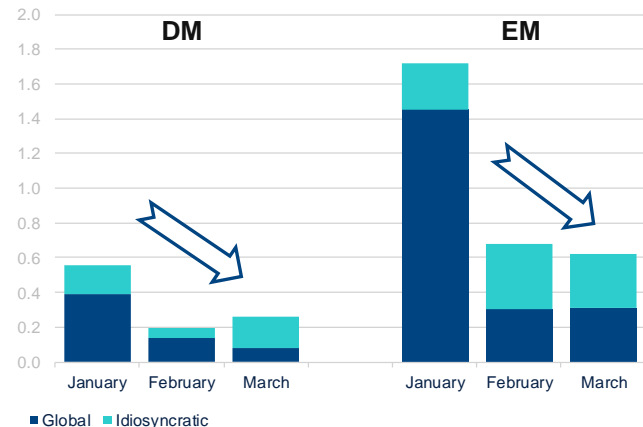
GIF total flows and their composition
(quarterly flows, all countries, % AUM)

Legend: Global, Idiosyncratic, Total
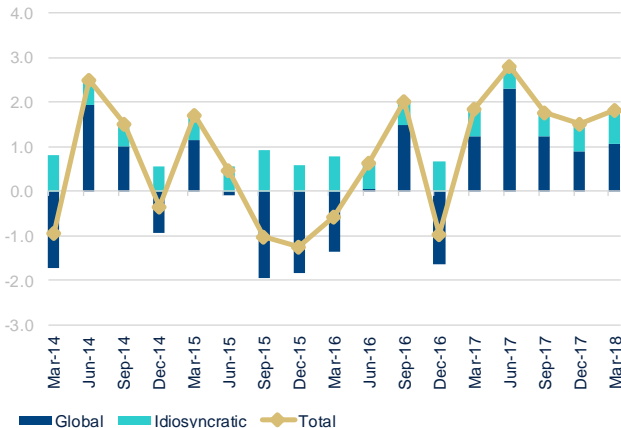
1Q 18: GIF flows and their composition by regions
(monthly flows, % AUM)

DM   EM

Legend: Global, Idiosyncratic
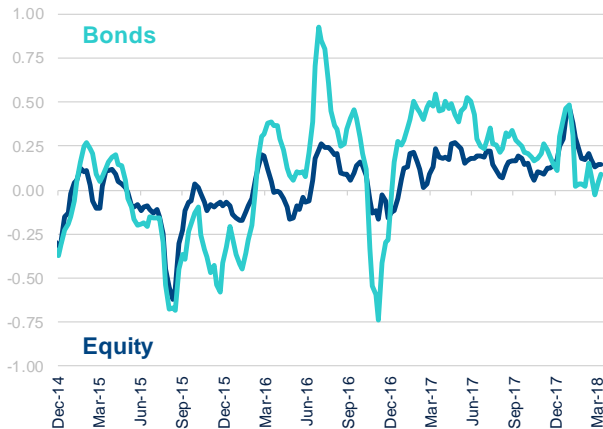
Source: BBVA Research, EPFR

During January, GIFs registered sizeable inflows (the highest since 2005) as lingering positive dynamics were further fostered by the US tax cuts

Since February, increasing concerns in financial markets (on inflation, the Fed´s normalisation and trade measures) triggered a sharp increase in volatility, which has negatively affected GIFs

The deterioration in investor sentiment is having a major impact on DM equity funds. EM funds, surprisingly, managed to avoid capital outflows

GIF flows to Emerging Markets
(weekly flows, 4w moving average, % AUM)

GIF flows to US funds
(weekly flows, 4w moving average, % AUM)
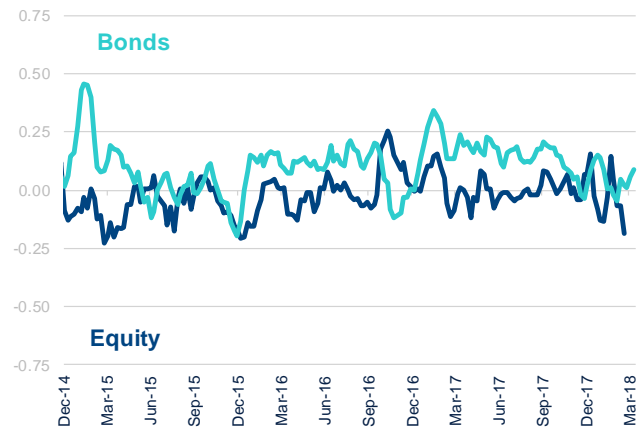
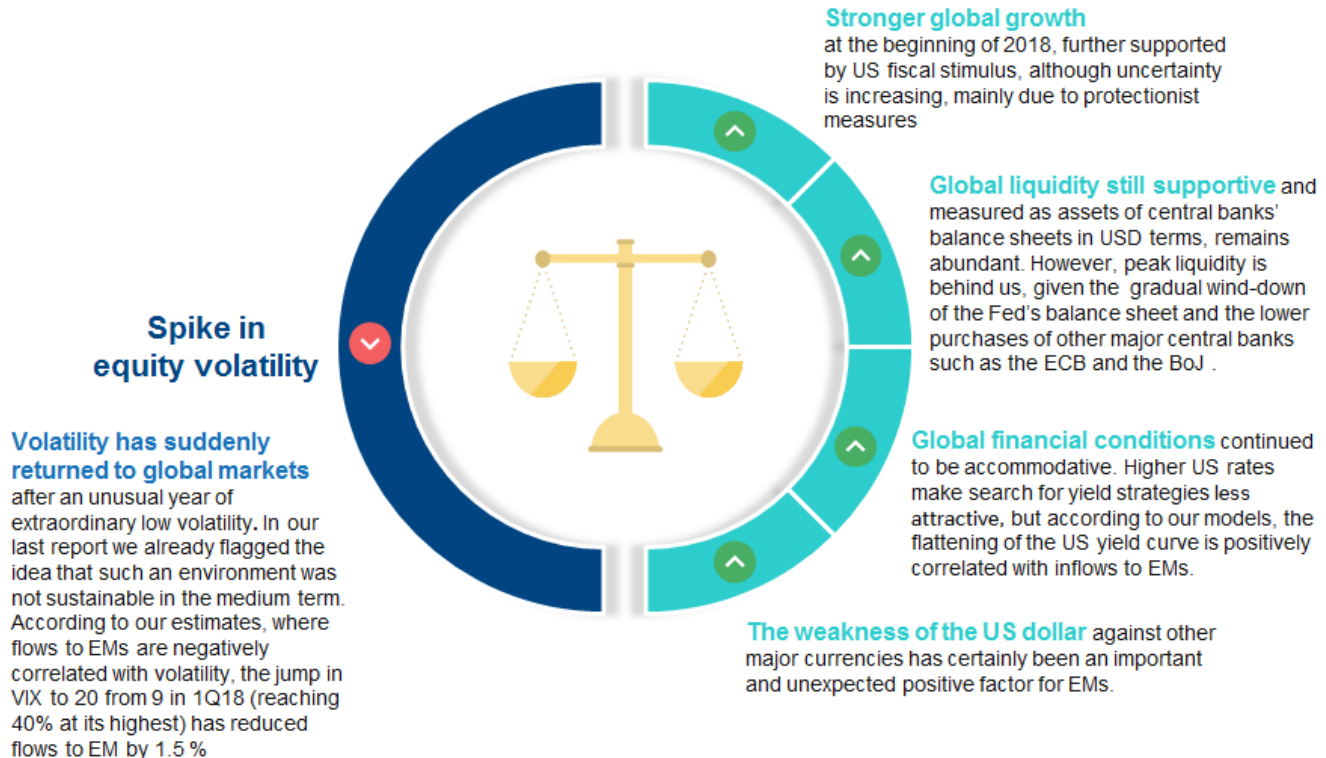
Source: BBVA Research, EPFR

Moderation in EM inflows: Carry strategies faded as US rates continued to increase, while inflows to equity funds remained positive, on the back of higher commodity prices and global growth

Against the backdrop of high equity volatility and high valuation, the bulk of outflows has been concentrated in US equity funds. Appetite for bonds remained in markets

Major macro determinants of GIF flows

- We identify the global and idiosyncratic macro-drivers of net GIF inflows to both EM and DM

A closer look at the main drivers of GIFs in 1Q18 shows that the negative impact of high volatility has been more than offset by lingering tailwinds

Stronger global growth at the beginning of 2018, further supported by US fiscal stimulus, although uncertainty is increasing, mainly due to protectionist measures

Global liquidity still supportive and measured as assets of central banks' balance sheets in USD terms, remains abundant. However, peak liquidity is behind us, given the gradual wind-down of the Fed's balance sheet and the lower purchases of other major central banks such as the ECB and the BoJ .

Spike in equity volatility

Volatility has suddenly returned to global markets after an unusual year of extraordinary low volatility. In our last report we already flagged the idea that such an environment was not sustainable in the medium term. According to our estimates, where flows to EMs are negatively correlated with volatility, the jump in VIX to 20 from 9 in 1Q18 (reaching 40% at its highest) has reduced flows to EM by 1.5 %

Global financial conditions continued to be accommodative. Higher US rates make search for yield strategies less attractive, but according to our models, the flattening of the US yield curve is positively correlated with inflows to EMs.

The weakness of the US dollar against other major currencies has certainly been an important and unexpected positive factor for EMs.

Volatility has returned to equity markets, leading to sharp corrections in stock exchanges but muted contagion to other market segments
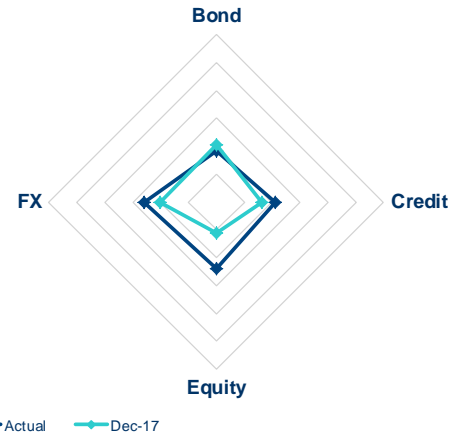
Main developed equity indices and volatility (VIX)
(100: January 2015, volatility: %)

VIX (rhs) — S&P 500 — Eurostoxx
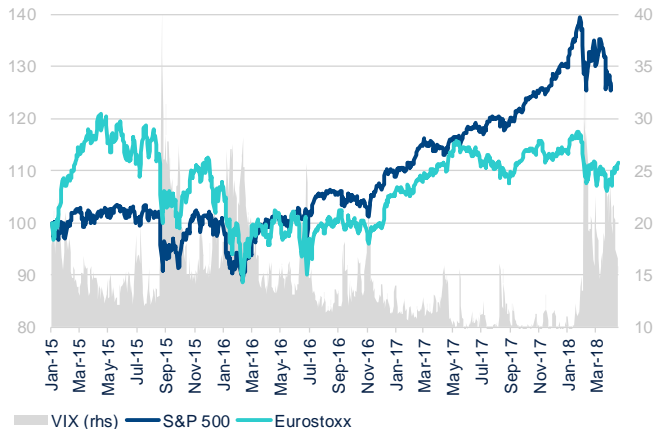
BBVA Research Volatility Index by asset
(Deviation from historical volatility)

Actual — Dec-17

Source: BBVA Research, EPFR

During 1Q18 there were several episodes of volatility, driven by inflation and the Fed´s reaction and fears of a trade war. Amid waning liquidity, volatility shocks could prove to be more persistent

Unlike other volatility episodes, contagion to other markets has been limited, particularly in credit

What makes the "VIX tantrum" different from other volatility episodes?

Estimated GIF to EM
(common factor, % AUM)

Legend:
- CB balace sheet
- US interest rates
- Global volatility
- Macro & Oil
- Total

Labels: China I, China II, VIX Tantrum
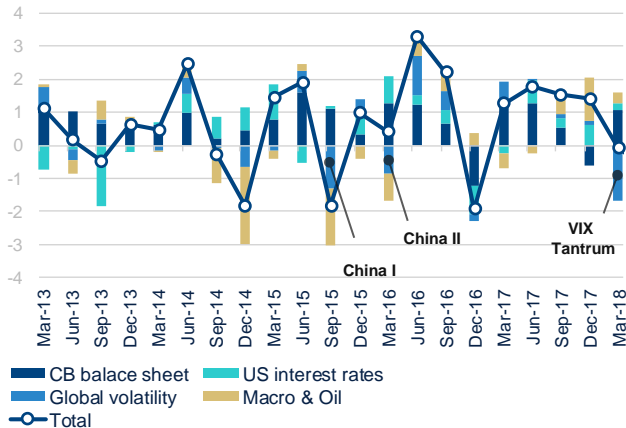
Flow to EM GIF
(0:week of the event, % AUM)

Weeks

Legend:
- Taper Tantrum (May 2013)
- US elections (Nov17)
- VIX tantrum (Feb18)
- Concerns about China (Aug 2015)
- Brexit (Jul17)

Source: BBVA Research, Bloomberg
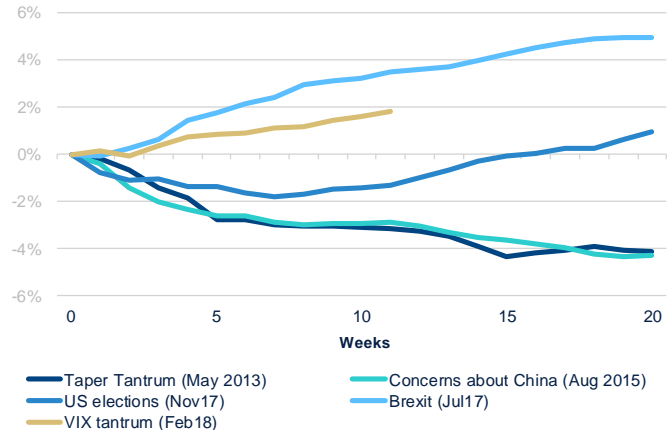
In summer 2015 and early 2016, financial markets showed two episodes of sudden increase in volatility triggered by fears of a hard landing for China's economy. In fact, higher volatility was coupled with a deterioration in the economic outlook. As a result, appetite for EM flows faded. However, this time the global background has been different: the macroeconomic outlook has remained positive

The flattening of the US yield curve and the weak US dollar have been supportive of inflows to EMs.
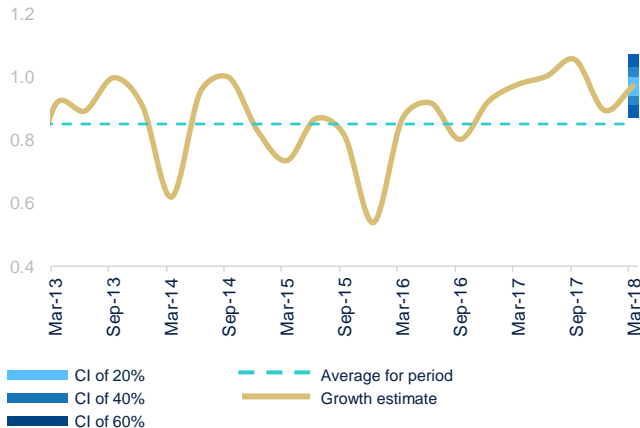
US and US slope (10-2 Y)
(% and bps)

US 10Y yields — US Slope (rhs)
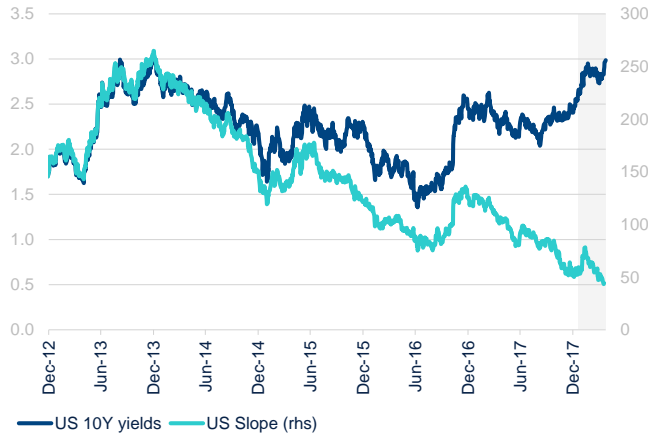
USD against EM and DM currencies
(Index)

DXY Curncy — EM fx (EMCI, rhs inverted)
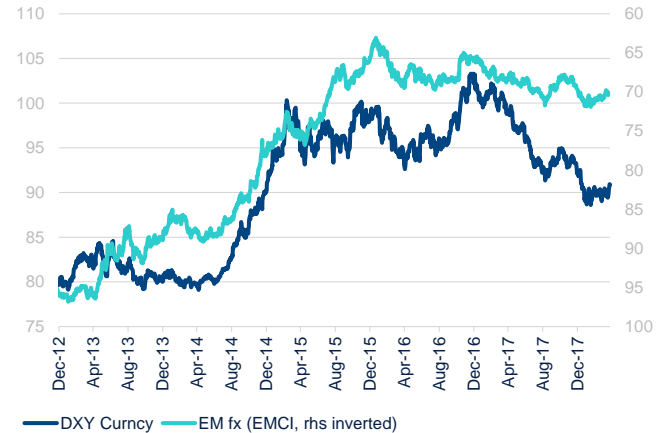
Source: BBVA Research, Bloomberg

# Strong economic growth and increasing oil prices also contributed to preventing sharp outflows from GIFs

World GDP growth Forecast based on BBVA-GAIN
(%, QoQ)

CI of 20%
CI of 40%
CI of 60%
Average for period
Growth estimate

Oil prices and breakdown between demand and supply sides
(USD and accumulated weekly change since January 2010, NY Fed)

Demand   Supply   Oil prices (rhs)

Source: BBVA Research, Bloomberg and NY Fed
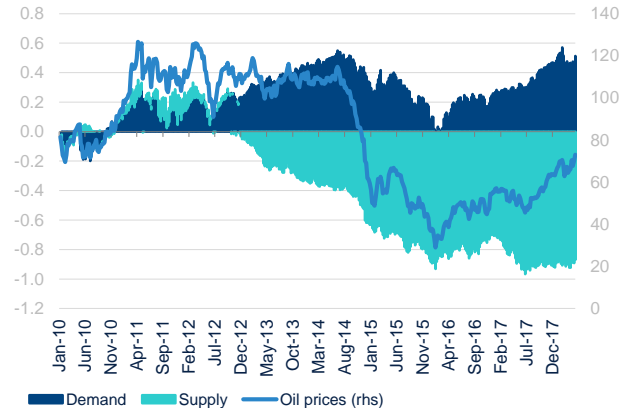
Despite increasing uncertainty linked to protectionism measures, global growth remains robust, partly helped by the US fiscal package. The rebound of oil prices above 70USD/b is increasingly driven by supply factors, including geopolitical risks

Investor sentiment

- We have developed a set of indicators, which combine asset prices
  and GIF flow data from EPFR, to identify:
  - episodes of risk-on mood and
  - episodes of risk-off mood, of which there are three types - pure risk aversion, redemption and safe-haven flight

- Furthermore, we assess investor appetite for funds in emerging markets vs. developed markets or equity vs. bonds

Market mood has returned to neutral territory but is still very far from a genuine risk-off or safe-haven episode

Investment mood index
(Factor 1 in factor analysis, see annex)
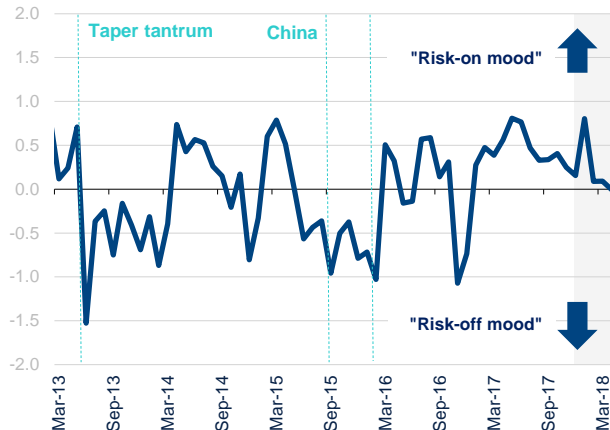
Probability of safe-haven flight based only on portfolio flow data*

Source: BBVA Research, EPFR
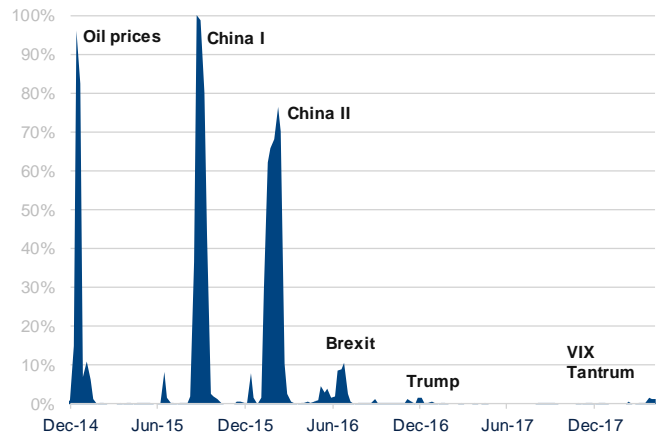
The risk-on mood that prevailed during 2017 has faded. During 1Q18, after an unusually positive mood in January, investors turned more cautious but, still far short of "risk-off" territory

According to our *probit* model, the probability of markets' entering safe-haven flight mode is very low

Lower risk appetite has particularly affected developed markets, leading to shrinking inflows to equity funds
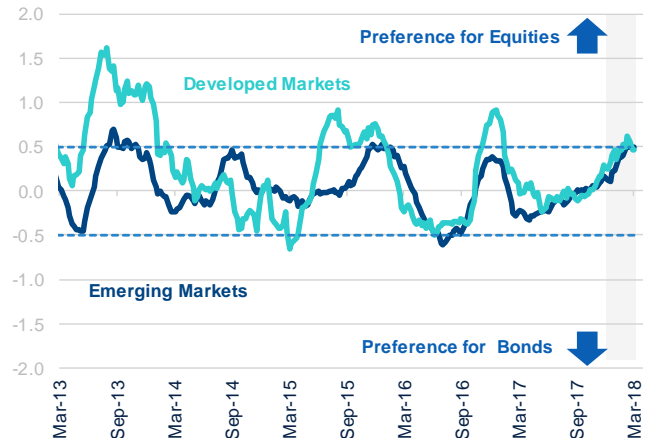
Investor appetite for DM vs EM
(indicator expressed in standard deviation from historical mean)
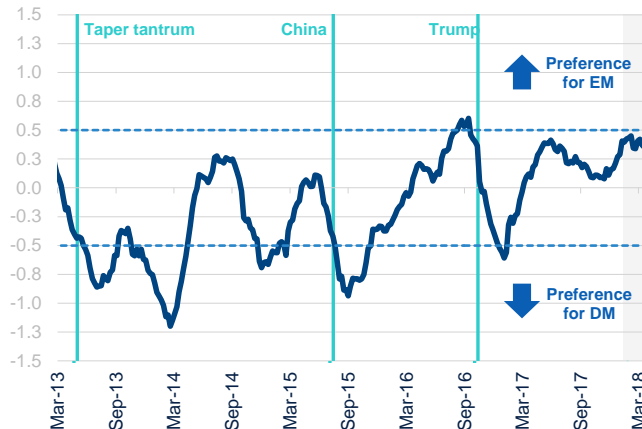
Investor appetite for bonds vs equity
(indicator expressed in standard deviation from historical mean)

Source: BBVA Research, EPFR

Higher volatility has been a push factor mainly for DM, particularly for equity and high-yield funds, which in the US registered significant redemptions over the quarter. However, EM equity funds have been registering significant inflows, offsetting the fact that search for yield strategies have become less attractive. As a result, the "particular" nature of recent volatility has led to a preference for EMs

What's next?

Our baseline macro-economic outlook

Global economic outlook

- **Global growth remains robust**, partly helped by the US fiscal package, while inflation remains contained

- **Upward revisions of GDP growth forecasts in major advanced economies**: US to 2.8% in 2018 and 2019, Europe to 2.3% and 1.8%

- **In China, we expect a gradual slowdown,** amid lower political uncertainty (6.3% and 6% in 2018 and 2019 respectively)

- However, **uncertainty has increased**, linked to **protectionism**. The direct effect of US approved measures is not very large, but they may presage more aggressive measures

Major central banks' monetary policy

- **Normalisation of central banks' monetary policy,** somewhat faster than expected in the case of the Fed, while the ECB has already taken its first steps

- The **Fed is expected to further raise rates by 75 bps in 2018** (to 2.50%) and 50 bps in 2019 (to 3%)

- **The ECB** has reduced its asset purchases since January. **QE is expected to finish by year end**. Interest rate hikes are not expected until 2019 (depo rate by March, refi by June)

Global financial conditions

- **Higher financial volatility, returning to more normal levels.** The unusually low volatility environment (especially in 2017) is now over

- Long-term interest rates, both in the US and Europe, are expected to increase gradually once safe-haven pressure diminishes

- Forecast for oil prices remains broadly unchanged

- The weakness of the US dollar vs major currencies is expected to persist driven by monetary policy expectations and uncertainty about US policies

Our baseline scenario for GIF to EM: Low volatility, low rates and massive inflows to EM are behind us
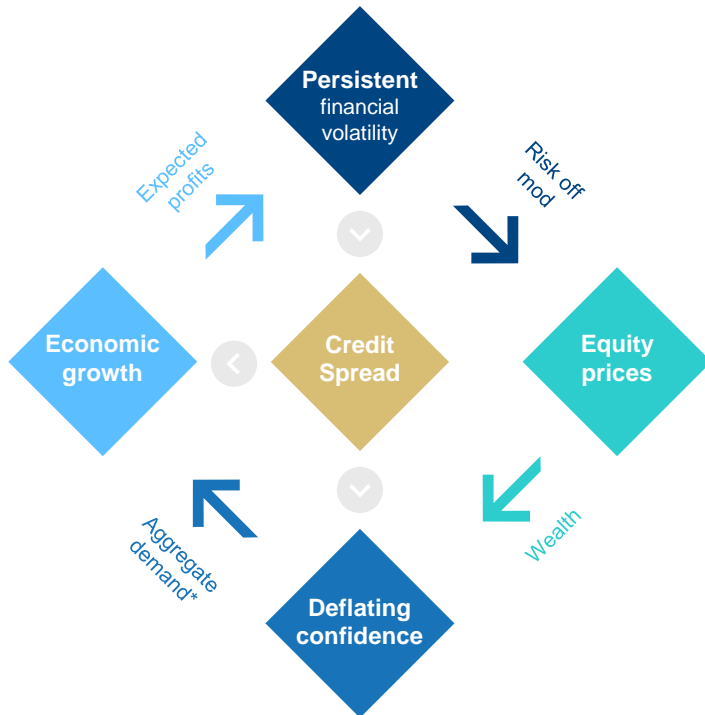
Estimated GIF to EM
(common factor, % AUM)
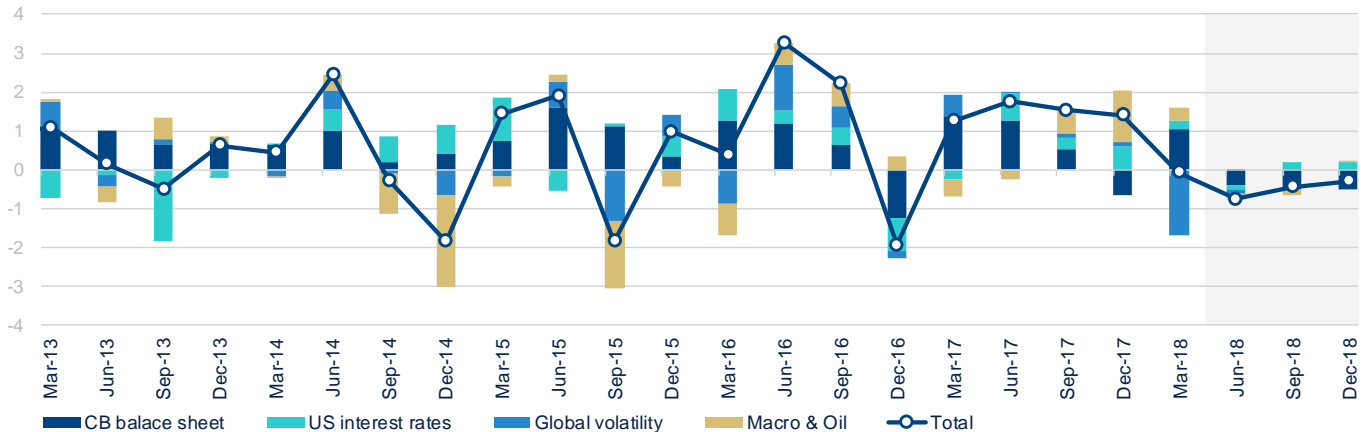
Source: BBVA Research, EPFR

While the economic outlook has improved in the short run, the financial outlook has become increasingly challenging for EMs. Once volatility has left behind the low levels seen in 2017 and increases in US interest rates become more certain, tailwinds could turn into headwinds.

What to watch for? Spill-overs from higher financial volatility onto other market segments, confidence and economic growth

Persistent financial volatility

Expected profits

Risk off mod

Economic growth

Credit Spread

Equity prices

Aggregate demand*

Wealth

Deflating confidence

- The rebound in global volatility is proving more persistent as sources of uncertainty mount (amid relatively high valuations and dominance of passive management and leveraged products):
  - Global trade fears
  - Tech-sector regulation
  - Central banks' exit strategy
- **Main channels of contagion: from financial markets to real economy**
  - **Wealth effect**: significant drops in equity indices could dampen the "wealth effect", hampering confidence indicators
  - **Credit constraints**: until now, contagion has been limited but if trade tensions escalate the tightening in funding conditions could be significant

Source: BBVA Research, EPFR4
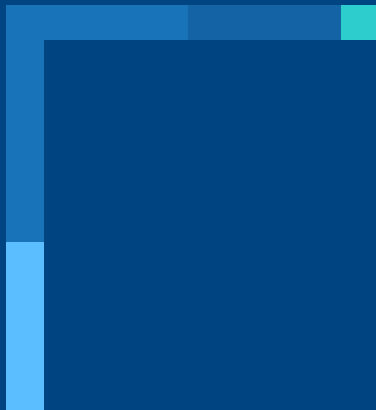
Annex

Glossary

- **GIF:** Global Investors Funds: these are the funds covered by the EPFR database in the "Country flows" allocation, with amounts shown in millions of US Dollars. This database includes the flows in country-denominated funds and the proportional amounts in global or supranational labelled funds.

- **AUM:** Assets under management in the EPFR database

- **DM:** Developed markets included in our sample are Austria, Australia, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Hong Kong, Ireland, Italy, Japan, the Netherlands, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, the United Kingdom and the US.

- **EM:** Emerging markets included in our sample are Argentina, Brazil, Chile, China, Colombia, Czech Republic, Hungary, India, Indonesia, Korea, Mexico, Peru, Philippines, Poland, Russia, Slovenia, South Africa, Thailand, Turkey and Venezuela.
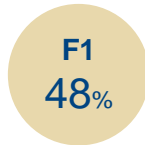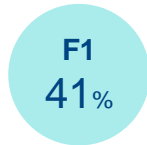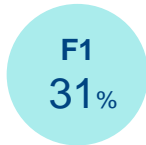
Factor analysis of EPFR flows, decomposition of global and idiosyncratic factors

% of 42 EQ flows explained

% of 42 BN flows explained

Implicity, **% of 42 Total** flows explained

GIF flows could be explained by 3 identified factors and idiosyncratic differences

F1 31%	**F1** 41%	**F1** 48%
F2 19%	**F2** 10%	**F2** 9%
F3 11%	**F3** 6%	**F3** 11%

+ **=**

1 **Global:** Captures common movements across all countries (same direction), i.e. due to changes in market risk appetite

2 **Asset reallocation** (bonds and equities) Variation explained by the reallocation between assets within a geographical region. The effect on each country will vary according to the composition of its stock between equities and bonds. Positive factor for preference for Equities over Bonds.

3 **Regional reallocation** (EM vs, DM) Explains the variation caused by the appetite for one area as against the other. Inverse effect between DM and EM

Macro-Financial Determinants of EPFR Flows

01 Methodology: GLS panel data

02 Sample: 42 countries, quarterly data from October 2005 to June 2017

03 Dependent Variables: Equities (EQ), Bonds (BN) and Total flows to each country.

04 We have allowed each explanatory variable to have a different effect on Developed vs. Emerging Markets
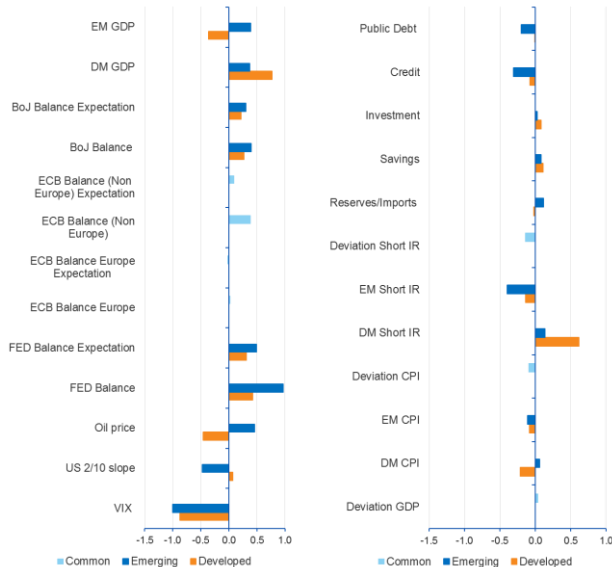
05 Explanatory variables (first differences)

- VIX
- USA 10Y-2Y Curve
- GDP Growth (EM, DM, Idios.)
- Inflation (EM, DM, Idios.)
- Short-term interest rate (EM, DM, Idios.)
- West Texas Intermediate (WTI)
- FED, ECB & BoJ Balance Sheet
- Expectation of changes in FED, ECB & BoJ Balance Sheet

- Public Debt-to-GDP
- Credit-to-GDP gap*
- Investment-to-GDP
- Savings-to-GDP
- Reserves-to-Imports

Macro-Financial Determinants of EPFR Flows.
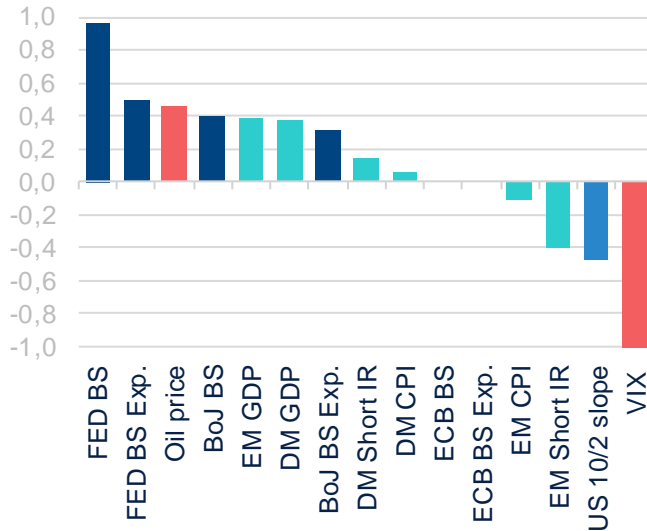# Panel Regression Results (Coefficients)

R² = 0.54

- Global variables are by far the most important determinants of total, equity & bond flows.

- Idiosyncratic variables play a limited role

- Markets seem to differentiate sharply between Emerging and Developed countries, but differentiation among countries seems quite limited
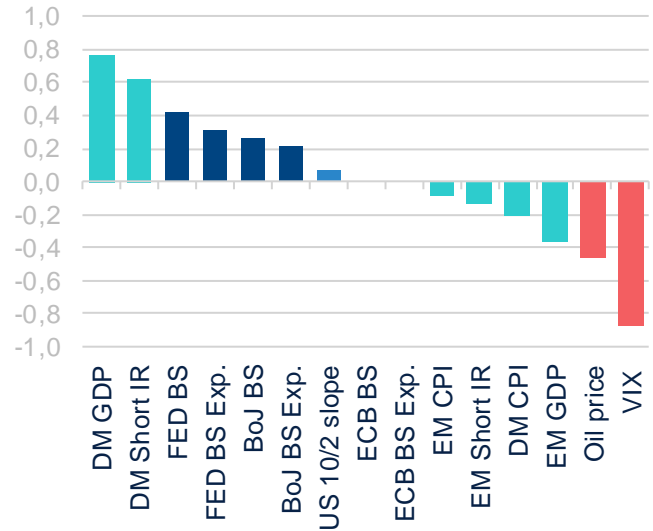
(*) Coefficients of standardised variables.

Global macro drivers

Sensitivity of EM GIF flows
(Coefficient of standardised variables in a panel regression)

Sensitivity of DM GIF flows
(Coefficient of standardised variables in a panel regression)

Source: BBVA Research, EPFR

Safe-haven indicator

The starting point for developing the indicator is to identify periods of risk aversion in financial markets. We determine these periods based on significant movements in selected financial variables. That is, we define a period t of risk aversion as follows:

$$t \; is \; a \; risk \; aversion \; period \; \Leftrightarrow (\Delta T10 < 0 \; or \; \Delta GER10 < 0 \; \& \; \Delta VIX > 0 \; \& \; \Delta EquityEM < 0)$$

Where:
- $\Delta T10$ refers to the weekly change of the 10Y Treasury YTM
- $\Delta GER10$ refers to the weekly change of the 10Y German government bond YTM
- ΔVIX refers to the weekly change of the VIX index
- $\Delta EquityEM$ refers to the weekly change of the MSCI Emerging Markets Index

In short, a risk aversion period is such that we witness lower long-term rates in developed market's government bonds, higher volatility in developed markets' equity and losses in emerging markets (EM) equity.

Once we have defined the set of risk aversion episodes, we categorize Safe Haven periods as a subset. To do so we follow two steps:

- First, we use the EPFR data to determine the conditional distribution of bond flows from institutional investors to Safe Haven countries (USA, Germany and Japan) and the conditional distribution of equity flows to Emerging Market countries (EM) from retail investors, both based on the four-week moving average change of assets under management (AUM). We are interested in the distributions in periods of risk aversion given their different behavior in comparison when considering the whole sample. In addition, we separate the distributions by type of investor given that we found a significant difference in their behavior under conditions of uncertainty (see figures 1, 2 and 3,4). That is, we found that institutional investors tend to fly to government bonds, while retail investors tend to reduce significantly their exposure to EM equity. These patterns could be associated with the different investment objectives and investment horizons of these types of investors

- Second, based on the analysis of the distributions by type of investor in risk aversion episodes we define the safe haven episodes as those periods t' such that

$$t' \; is \; a \; safe \; haven \; period \; \Leftrightarrow (Bond \; flows \; to \; haven \; countries \; from \; Institutional \; Investors > p50) \; \& \; (Equity \; flows \; to \; EM \; from \; Retail \; Investors < p50) \; | \; t'\varepsilon \; risk \; aversion \; episode)$$

That is, given that we are in a risk aversion episode, this can be considered in the subset of Safe Haven episodes if and only if the flows from Institutional Investors to safe haven bonds during the period increases in more than the median of the distribution; and if bonds from retail investors to emerging market equity decrease during the period in more than the median of the distribution. All measured by the four-week moving average change of assets under management

A second subset of risk aversion episodes is given by the redemption category. This tries to capture all risk aversion episodes in which investors sell most financial assets looking not just for save haven but for liquidity. In short, we define redemption episodes as follows:

$$t'' is \; a \; redemption \Leftrightarrow Bond \; flows < 0 \; \& \; Equity \; flows < 0 \; \& \; Money \; market \; flows > 0 \; | t'' \; \varepsilon \; risk \; aversion \; episode$$

That is, given that we are in a risk aversion episode, this can be considered in the subset of redemption episodes if and only if two conditions hold:
1) The flows to bonds and equity during the period decrease;
2) The flows to money markets increase;

All measured by the monthly average of assets under management

Regional re-allocation

This exercise pursues a simple indicator to measure the investor's preference for a certain region over time. It is based on EPFR data* The indicator has been built with the EPFR data (since 2005) in USD but the portfolio flows have been relativized by assets under management (of each period) to make their comparable.

The indicator allows us to capture the short term dynamics and to quantify and compare the effects in portfolio flows of the realization of some risk events in a very simple way. It lets us identify easily the regions that suffered the most and to measure the relative impact.

This is a relative indicator as it compares the flows to different regions to create relative measure.

The previous step is to create an indicator for EM and to DM. Those indices are obtained by smoothing (moving average 3M) the normalized flows to each region (weighted by asset under management of each country or area) in order to create a more stable indicator for each region given we aim to capture the trend more that the weekly spikes. As the flows have been standardized, those indices should be understood as standard deviation from their historical mean (since 2005). These partial indicators allow to breakdown areas or countries contribution to the indicator.

The difference between developed markets and emerging market indices shows the relative appetite of each region, and a deviation of 0.5 from the mean means a marked preference for one region over the other.

- Weekly change in total portfolio flows by Country (% of assets under management)

$$x_i = \frac{Weekly\ total\ flows\ (USD)}{Total\ assets\ under\ management\ (USD)}$$

- Standardization

$$Z_i = \frac{x_i - \bar{x}}{\sigma}$$

- Moving average of 3 months

$$\frac{1}{n}\sum_{i=0}^{n} Z_i$$

n: 12 weeks

- Weighted the moving average by its relative weight in EPFR database

$$\bar{x}_{DM} = \frac{\sum_{i=1}^{n}(x_{DMi} * w_{DMi})}{\sum_{i=1}^{n} w_{DMi}} \qquad \bar{x}_{EM} = \frac{\sum_{i=1}^{n}(x_{EMi} * w_{EMi})}{\sum_{i=1}^{n} w_{EMi}}$$

W: is the weight of each country or area in the assets under management in each area (DM or EM)
X: is the 3months moving average of the standardized flow to a country or region
i: is the countries or area in the regional (DM or EM) index

- Relative preference:

$$Y = \bar{x}_{EM} - \bar{x}_{DM}$$

Weight of each country in the region

Region	Country	Weight	
DM	United States	73%	100%
	Eurozone	13%	
	Japan	6%	
	United Kingdom	5%	
	Swizerland	3%	
EM	Latin America	31%	100%
	Asia (ex China & Japan)	51%	
	Emerging Europe	18%	

Type of asset re-allocation

This exercise pursues a simple indicator to measure the investor's preference for a certain type of assets (equity or bonds) over time. It is based on EPFR data* The indicator has been built with the EPFR data (since 2005) in USD but the portfolio flows have been relativized by assets under management (of each period) to make their comparable.

The indicator allows us to capture the short term dynamics and to quantify and compare the effects in portfolio flows of the realization of some risk events in a very simple way. It let us identify easily the type of assets that suffered the most and allows us to measure the relative impact.

This is a relative indicator as it compares the flows to different type of assets a create relative measure.

The previous step is to create a indicator for Bonds or Equity. Those indices are obtained by **smoothing** (moving average 3M) the normalized flows to each type of asset (weighted by asset under management of each country or area) in order to create a more stable indicator for each region given we aim to capture the trend more that the weekly spikes. As the flows have been standardized, those indices should be understood as standard deviation from their historical mean (since 2005).

The difference between bonds and equity shows the relative appetite of each type of asset, and a deviation of 0.5 from the mean means a marked preference for one type of assets over the other.

- Weekly change in Bonds and Equity portfolio flows by Country (% of assets under management)

$$x_i = \frac{Weekly\ total\ flows\ (USD)}{Total\ assets\ under\ management\ (USD)}$$

- Standardization

$$Z_i = \frac{x_i - \bar{x}}{\sigma}$$

- Moving average of 3 months

$$\frac{1}{n}\sum_{i=0}^{n} Z_i$$
n: 12 weeks

- Weighted the moving average by its relative weight in EPFR database (example for DM)

$$\bar{x}_{DM\ bond} = \frac{\sum_{i=1}^{n}(x_{DMi} * w_{DMi})}{\sum_{i=1}^{n} w_{DMi}} \qquad \bar{x}_{DM\ equity} = \frac{\sum_{i=1}^{n}(x_{EMi} * w_{EMi})}{\sum_{i=1}^{n} w_{EMi}}$$

W: is the weight of each country or area in the assets under management in each area (DM or EM)
X: is the 3months moving average of the standardized flow to a country or region
i: is the countries or area in the regional (DM or EM) index

- Relative preference:

$$Y(DM) = \bar{x}_{DMequity} - \bar{x}_{DM\ bond}$$

Weight of each country in the region

Region	Country	Weight	
DM	United States	73%	100%
	Eurozone	13%	
	Japan	6%	
	United Kingdom	5%	
	Swizerland	3%	
EM	Latin America	31%	100%
	Asia (ex China & Japan)	51%	
	Emerging Europe	18%	

DISCLAIMER