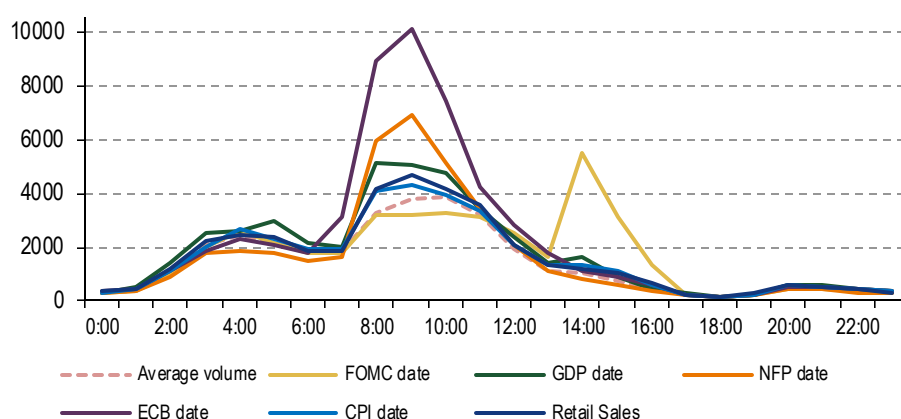


### Key takeaways

- With FX traded around the clock, understanding liquidity and market microstructure can have key implications in managing risk
- We find high frequency volume is subdued ahead of major macroeconomic announcements followed by a sharp rise
- Such drastic change in mkt behavior raises concern of potential worsening of liquidity, EUR/USD vol looks attractive as hedge

### By Alice Leng

#### Chart of the day: impact of Macroeconomic announcements on EUR/USD Average Hourly Volume



Average FX Volume (Y-axis) is calculated during New York hour using 8 years of hourly transaction data from EBS and Reuters.  
Source: BofA Merrill Lynch Global Research

### News arrival on FX transactions

With FX traded around the clock, understanding FX liquidity and market microstructure can have important consequences in managing risk and engaging in optimal execution. We analyze the impact of macroeconomic news arrival on exchange-rate movements with primary focus on hourly volume, liquidity and volatility.

We find volume is subdued ahead of major macroeconomic announcements. The calm before the storm tends to be followed by a drastic rise in activity around data releases. Such activity tends to remain elevated for short while, with a likely second market sway when the Asia market opens. Such a drastic change in market behavior raises concerns of potential sudden worsening of liquidity in response to unexpected events. Consequently, effective execution such as advanced algo can help avoid overcrowded trades and ensure smooth transactions. At the same time, regular hedging ahead of a major news arrival can also help to mitigate risk and avoid situations of extreme lack of liquidity and escalation in volatility.

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With summer seasonality coming to a close, volume is likely on the rise. The rise in activity could lead to escalated FX movement potentially breaking the range spot has been circulating over the summer. Higher activity could bring volatility back. 1m to 3m EUR/USD and USD/JPY volatility look attractive as a hedge.

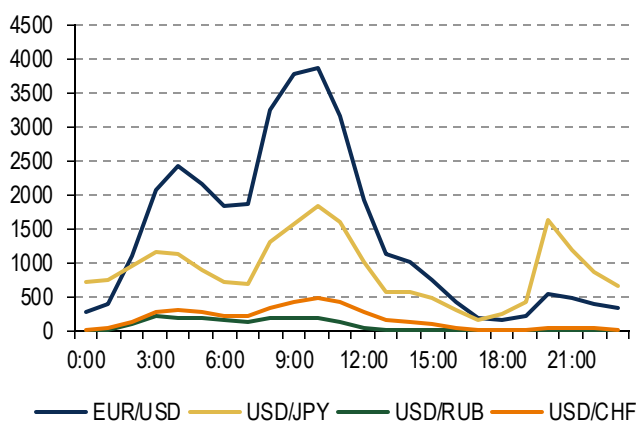
## Volume around the clock

FX is an asset class that is traded around the clock, and understanding that liquidity varies greatly by currency and time of day can be very useful in managing risk. We analyze high frequency patterns in FX to dissect the hidden market microstructure in response to macroeconomic news arrival. We find volume is subdued ahead of macroeconomic announcements. The calm before the storm tends to be followed by a drastic rise in activity during release time, which tends to remain elevated for a short while.

## Impact of macroeconomic announcement

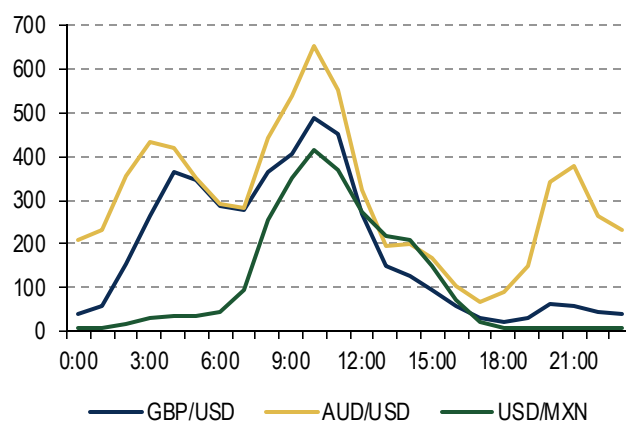
FX volume changes across different times of the day depend on major data releases and overlap of time zones. Trading in EUR/USD, USD/JPY and AUD/USD is high around 8-10am New York time during which major US data such as GDP, NFP and inflation are released (Chart 1). USD/JPY and AUD/USD also see a rise in volume when the Asia market opens due to its geographical and time-zone locations. Business hours in Europe see a rise in volume of GBP/USD trading activity while morning hours in North America see a rise in USD/MXN trading activity since both USD and MXN are located in US time zones (Chart 2).

Chart 1: Average Hourly Volume (New York Time)



Source: BofA Merrill Lynch Global Research

Chart 2: Average Hourly Volume (New York Time)

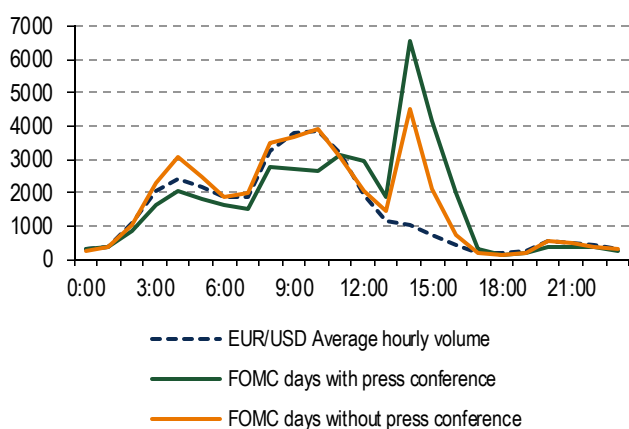


Source: BofA Merrill Lynch Global Research

## Central bank meetings

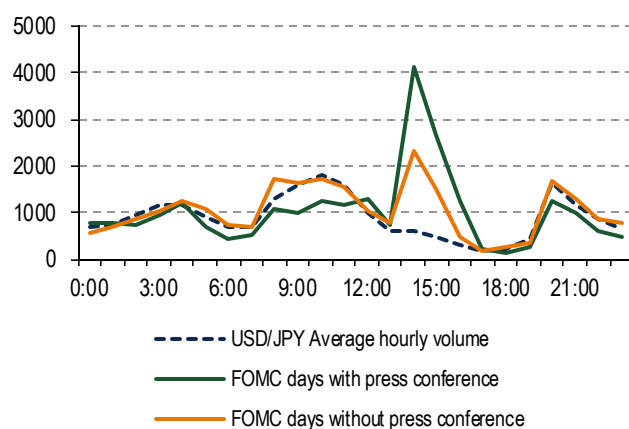
The FX market tends to react to central bank meetings with a multifold rise in volume during hours with ECB and FOMC meetings. EUR/USD volume tends to rise sharply around 2-3PM NY time. Such a rise in volume is more significant during meetings with press conferences (Chart 3). USD/JPY also sees a rise in volume during FOMC meetings, particularly those with press conferences, as traders engage in speculative and hedging activities in response to language and policy changes (Chart 4).

**Chart 3: EUR/USD average hourly volume on FOMC announcement days**



Source: BofA Merrill Lynch Global Research

**Chart 4: USD/JPY average hourly volume on FOMC announcement days**

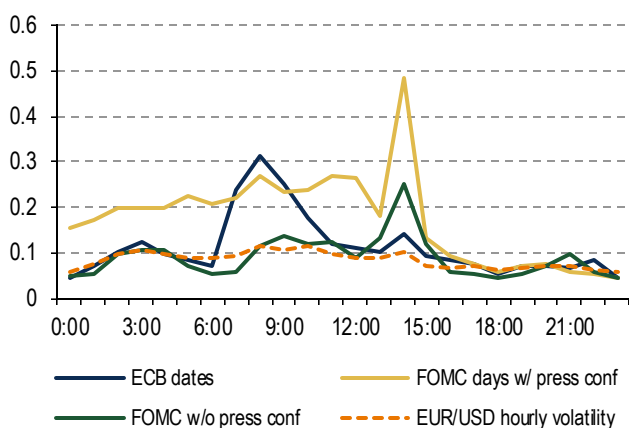


Source: BofA Merrill Lynch Global Research

### Vol adjusted liquidity

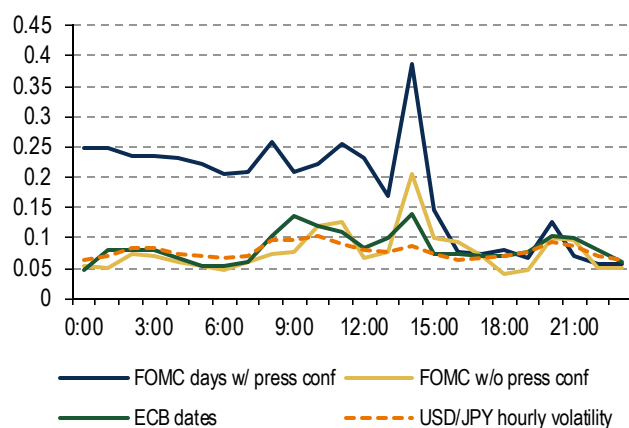
Volatility also tends to surge around central bank meetings consistent with a rise in volume around the same time. Hourly volatility tends to rise around 8:30am NY time during days with ECB meetings whereas hourly volatility is noticeably higher around 14:00-15:00 NY time when FOMC meetings and press conferences take place (Chart 5). USD/JPY tends to see a rise in hourly volatility ahead of FOMC days with press conferences possibly due to speculation and hedging activities (Chart 6).

**Chart 5: EUR/USD hourly volatility on central bank announcement days**



Source: BofA Merrill Lynch Global Research

**Chart 6: USD/JPY hourly volatility on central bank announcement days**



Source: BofA Merrill Lynch Global Research

### Macroeconomic data

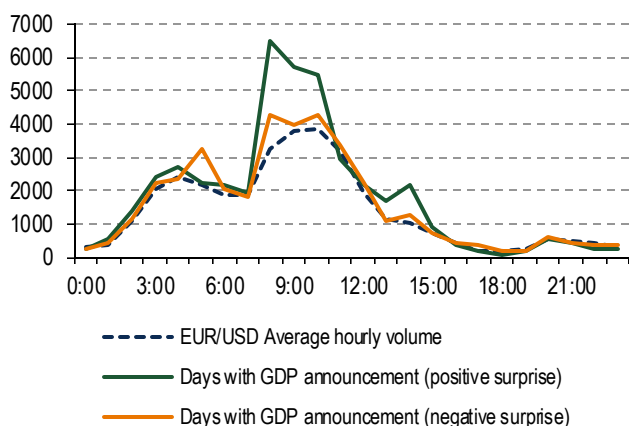
Macroeconomic news arrival also has a significant impact on FX movements. We analyze five macroeconomic announcements: central bank, inflation, GDP, non-farm payroll and retail sales on FX volume and liquidity. We find a drop in volume ahead of the data release followed by a sharp rise in activity around 8:30am New York time during which major news arrival generates an instantaneous surge in trading volume.

#### GDP

Volume tends to be depressed ahead of advanced GDP release followed by a sharp rise around 8:30am when the actual number is released. Such impact is larger for a GDP release that beats market consensus. Volume tends to rise twice as much as normal days following positive data surprise, whereas the impact of a negative data surprise tends to be less significant (Chart 7).

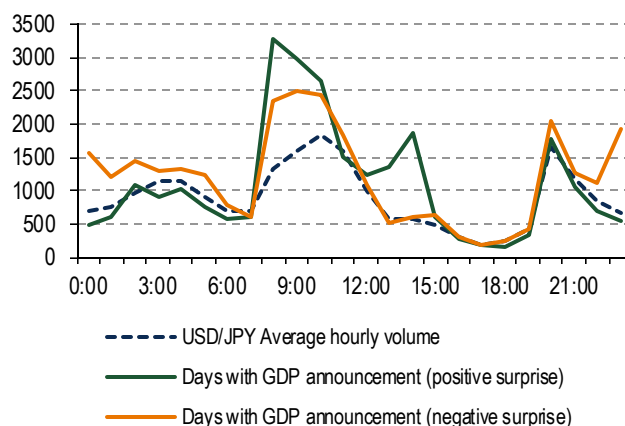
Similar patterns appear in USD/JPY volume when a positive data surprise lifts hourly volume by a noticeable amount followed by second rise in activity around 2pm New York time (Chart 8). Negative GDP surprises tend to have second impact on volume when the Asia market opens given the yen's significance in hedging and speculation as investors engage in hedging activities under the backdrop of weak US data.

**Chart 7: EUR/USD hourly volume on GDP (advanced) announcement days**



Source: BofA Merrill Lynch Global Research

**Chart 8: USD/JPY hourly volume on GDP (advanced) announcement days**



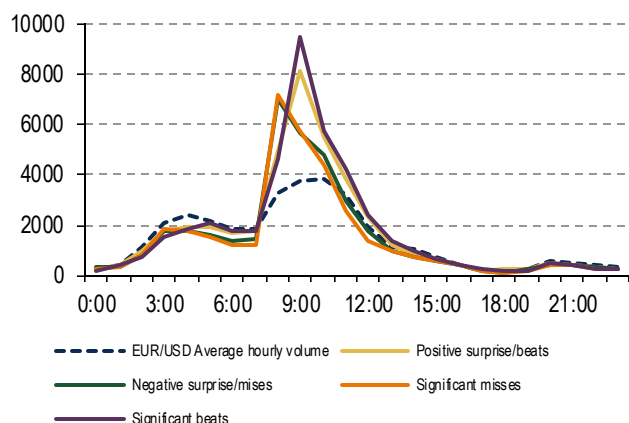
Source: BofA Merrill Lynch Global Research

## Nonfarm payroll (NFP)

Nonfarm payroll is also an important macroeconomic data release that tends to have a visible impact on FX volume. Volume tends to rise multifold in response to market surprises both to the upside and downside. When the actual release beats the market consensus, volume tends to rise sharply, and the pattern is even more extreme during significant beats when the actual NFP release surpasses market consensus by a large amount. The market tends to react to negative data surprises earlier than positive data surprises possibly due to hedging and rebalancing in response to weak data for EUR/USD (Chart 9).

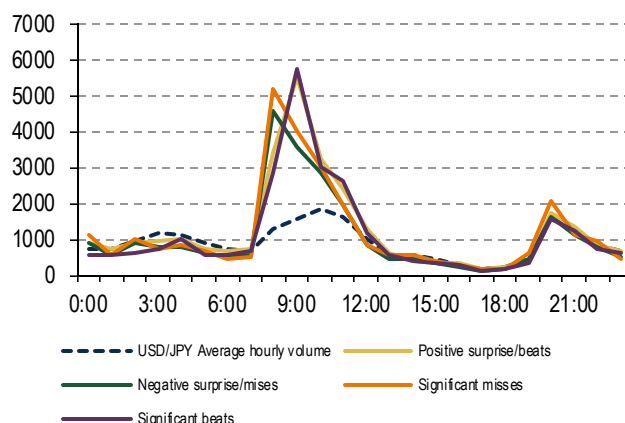
Such a pattern is also obvious in USD/JPY hourly volume when data surprises both on the positive and negative side tend to raise volume during the data release time in US hours, followed by a second wave of activity when Asia opens (Chart 10).

**Chart 9: EUR/USD hourly volume on NFP announcement days**



Source: BofA Merrill Lynch Global Research

**Chart 10: USD/JPY hourly volume on NFP announcement days**



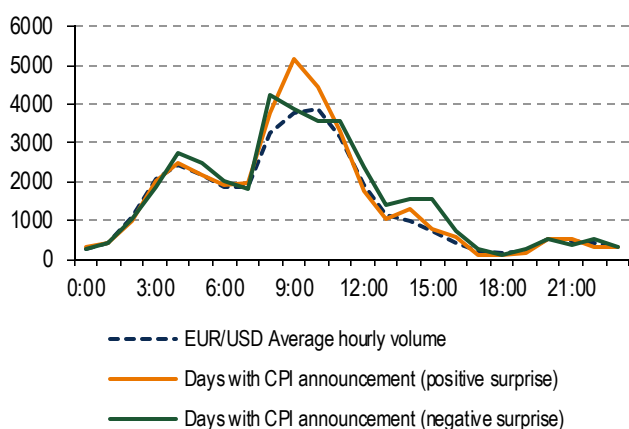
Source: BofA Merrill Lynch Global Research

## Inflation

Inflation data releases such as CPI mom also drive up trading activity. However, the impact is less obvious as compared to GDP and NFP releases. Generally, positive

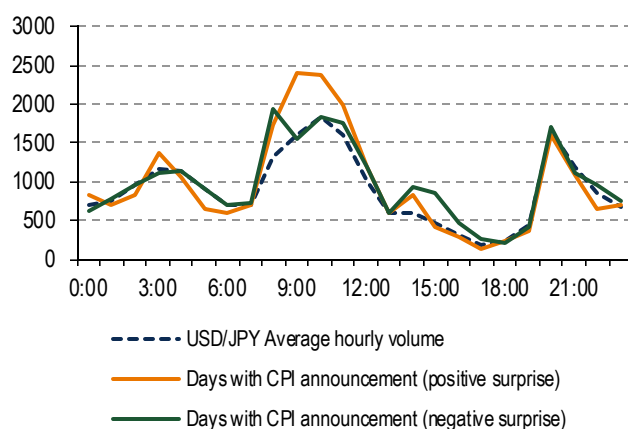
surprises when the inflation release is higher than the consensus lifts volume for both EUR/USD and USD/JPY during the data release time (Chart 11, Chart 12). Negative data surprises with lower inflation prints than the consensus tend to have a minimal impact on trading volume as compared to historical average levels.

**Chart 11: EUR/USD hourly volume CPI announcement days**



Source: BofA Merrill Lynch Global Research

**Chart 12: USD/JPY hourly volume on CPI announcement days**

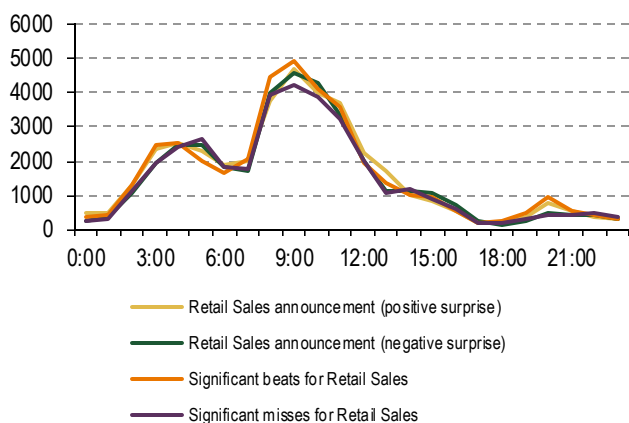


Source: BofA Merrill Lynch Global Research

## Retail sales

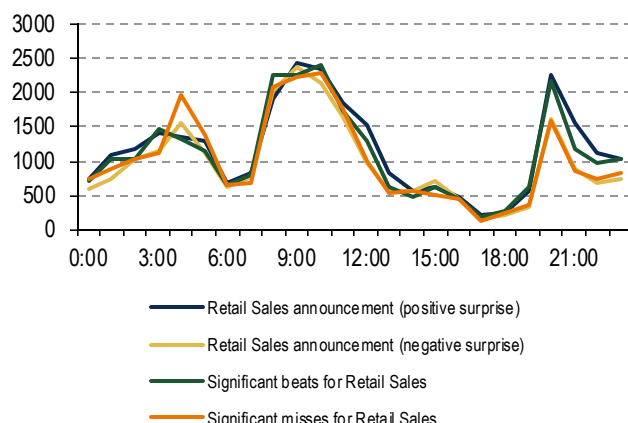
Retail sales are another important macroeconomic data release. However, volume tends not to react as much as other major data releases (Chart 13, Chart 14). This lack of reaction can possibly be attributed to other data releases around 8:30am NY time, especially on Fridays with a major labor market report already raising historical average volume to a noticeably high level.

**Chart 13: EUR/USD hourly volume on Retail Sales announcement days**



Source: BofA Merrill Lynch Global Research

**Chart 14: USD/JPY hourly volume on Retail Sales announcement days**

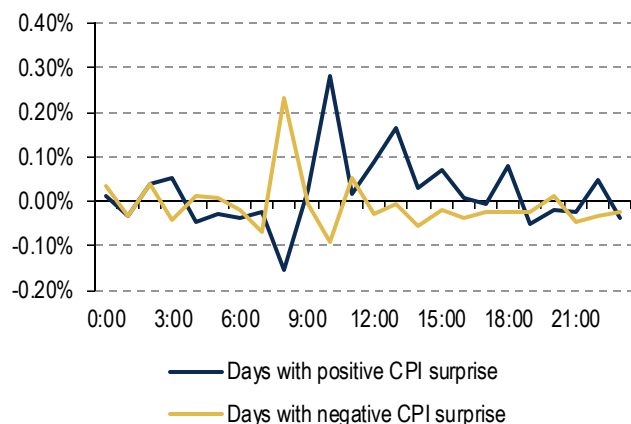


Source: BofA Merrill Lynch Global Research

## Asymmetric spot movement in response to events

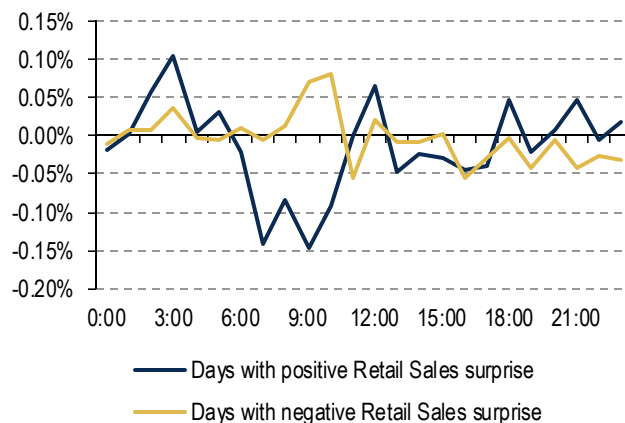
Return also reacting to news arrival uniquely depends on whether the market overshoots or undershoots expectations. By computing the average hourly return of EUR/USD during CPI and retail sales release dates, we find the market tends to have a mixed reaction to CPI releases possibly due to the mixed effect of inflation on central bank agenda at various stages in the hiking cycle (Chart 15). Investors may be more likely to have different interpretations of the information content and the headline number. The market tends to react to negative retail sales faster with more dollar weakening, whereas positive retail sales tend to strengthen the dollar with a lag (Chart 16).

**Chart 15: EUR/USD hourly return during CPI announcement days**



Source: BofA Merrill Lynch Global Research

**Chart 16: EUR/USD hourly return during Retail Sales announcement days**



Source: BofA Merrill Lynch Global Research

## Implications

Our analysis shows that volume tends to depress ahead of major data releases followed by a sharp rise during market macroeconomic data releases. Such drastic changes in market behavior raise concern of a potential sudden worsening in liquidity in response to unexpected events. Consequently, effective execution such as advanced algo can help avoid overcrowded trades and ensure smooth transactions. At the same time, regular hedging ahead of a major news arrival can also help to mitigate risk and avoid situations of extreme lack of liquidity and escalation in volatility.

With summer seasonality coming to a close, volume is likely on the rise ahead of a number of scheduled events such as FOMC and ECB meetings in September, ongoing trade negotiations, the crucial US midterm election and Brexit outcome. The rise in activity could lead to escalated spot movement potentially breaking the range spot has been circulating over the summer. Higher activity could bring volatility back. 1m to 3m EUR/USD and USD/JPY volatility look attractive as a hedge.

## Notable Rates and FX Research

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- [Global Rates, FX & EM 2018 Year Ahead](#), 19 November 2017
- [EM climbs out of \(Jackson\) hole](#), **Global Liquid Markets Weekly**, 27 Aug 2018
- [Fly fishing for dollars](#), **Global FX Weekly**, 23 Aug 2018
- [Coming up for air](#), **Global Rates Weekly**, 24 Aug 2018
- [Beyond the majors](#), **Liquid Cross Border Flows**, 3 Sep 2018

## Top 10 Rates, FX & EM trades for 2018

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See [Global Rates, FX & EM 2018 Year Ahead](#)

For a complete list of our open trade recommendations, as well as our trade recommendations closed over the last 12 months, see:

[Global FX Weekly: Fly fishing for dollars, 23 Aug 2018](#)

[Global Rates Weekly: Coming up for air, 24 Aug 2018](#)

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