# Global Macro Strategy

## What could cause a US bond market sell-off?

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Global

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**US rates have rallied despite the Fed hike in December 2015**

The Fed hiked in December 2015 and 2-year, 5-year, 10-year and 30-year US rates have rallied 27bp, 57bp, 65bp and 65bp, respectively. Needless to say this outcome has surprised investors. And investors are now wondering what conditions are necessary for a bond market sell-off? For the best part of the last year we have argued that bonds would rally and continue to expect 10-year rates to end the year at 135bp. Our reasons for lower long-end US rates include the outsized impact of the Fed's hawkish communication on broad financial conditions and inflation expectations, the flattening of the Phillips curve, the decline in terminal rates, the impact scarcity of positive yielding safe assets and global disinflation. But the question remains; contrary to our views, what set of macro risks could trigger a bond market sell-off? In this note, we attempt to answer this question based on a historical analysis and dynamics of the current hiking cycle.

**Global bond market sell-off or inflation is needed for US bond market sell-off**

Since 1970s, we find that a typical US bond market sell-off has coincided with global developed-market bonds selling off and/or the Fed Funds rate moving sharply higher as inflation accelerates. Over the coming six-months, we think these coincident conditions are less likely to be met. And in the case of headline inflation and global bond yields, it can be argued that risks are to the downside. Therefore, we think long-end US yields are likely to head lower over the next six months.

**Can front-end US rates reprice higher?**

They can – Fed tightening is priced for perfection (and with a dovish Fed in the market's mind), Japan yields can jump higher depending on the policy developments and European yields are rich at a time that the ECB is discussing adjustments to its modality plan. But such moves are unlikely to be sustained and may quickly reverse in an environment of low growth, soft inflation and fragile risk sentiment/elevated global risk aversion.

**What's different now and best ways to position for higher rates**

Beyond the historical perspective, the key difference in the current market is very low pricing of the Fed hikes and inflation expectations. Since the financial crisis, sell-offs have happened because market expectations were too skewed to the downside. As we saw with better than expected July payroll data, the bar to beat market expectations is very low now. We think short-rates in the US are most susceptible to selling off; as such it makes sense to underweight 5-year and under part of the curve. To hedge against higher than market's expected inflation outcome, we believe investors should overweight 30-year TIPS, which are trading near terminal real rate expectations of 60bp. In terms of curve, we like being in 2s30s –Nominal/Real- curve flatteners. We also like buying 30-year TIPS or nominals versus comparable German bunds. Beyond the positioning view, we offer four scenarios which could push rates higher.

# What could prompt a sell-off in US rates?

**10yr US Treasury forecast 1.35% (end-2016)**

**UBS Research** THESIS MAP

PIVOTAL QUESTIONS

**Q: Characteristics of previous bond market sell-offs**

From the 50 largest bond market sell-offs since 1970, we conclude that typical bond market sell-offs coincide with global bond markets selling off and/or central bank hiking aggressively as headline/core inflation accelerates. All of which seems less likely to us in the next 6 months.

**Q: What's different this time that can drive rates higher?**

This time we have the setup of very low growth and inflation expectations. Market pricing of Fed hikes and inflation is much lower than the Fed's modal expectations, posing the biggest risk to US bond markets. Four scenarios that could push rates higher in the next 6 months: (1) Higher growth and inflation expectations (with a low probability), (2) a supply driven inflationary breakout from factors such as wages (most worrisome outcome but the least likely), (3) policymakers becoming proactively hawkish (tends to be idiosyncratic and not on a global level resulting in a short-lived sell-off), (4) global bond markets correcting (spikes in global yields unlikely sustained without inflation & growth).

**Q: Which parts of the curve are most vulnerable to a sell-off?**

The price action following the better than expected July payroll data is a recent example of how low the bar to beat expectations is. We think short-notes – 5y and under- in the US are susceptible to selling off. Given that long-end real rates are near the Fed’s terminal real rate expectation at 60bp and TIPS BEIs are near all-time lows, we think 30-year TIPS are least susceptible to a sell-off.

WHAT'S PRICED IN?

**Market based expectations are for a gradual increase in 10yr US yields and a larger increase in shorter maturities**. 10yr US Treasuries yields are anticipated (by the market) to rise by 10bps in the next 6 months and by a further 7bps in the following 6 months. 2yr US yields are projected to rise by 15bps in the next 6 months. We expect 10yr US yields to fall to 1.35% by end-2016. As noted, 30-year real rates are at 60bp – which happens to be the Fed’s terminal real rate expectation. If inflation expectations do not rise, 30-year real rates are likely to rally and if inflation comes in higher than market pricings, breakevens should widen and long-end TIPS investor should outperform.

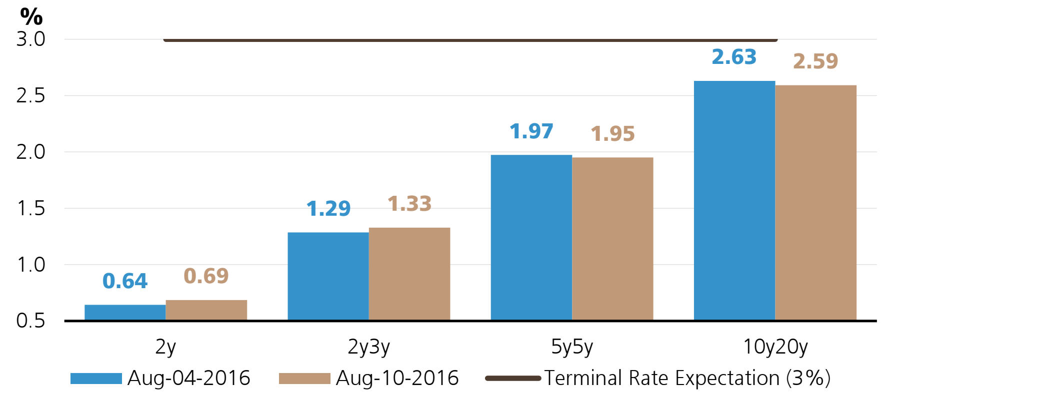
UBS VIEW

**Unlikely to see a large sell-off in US yields in next 6 months:** Instead, we see scope for US bonds to rally leading to falling yields in the next 6 months for several reasons: (1) Easing developed-world monetary policies outside of the US (2) US terminal rate expectations are now much lower than in the past, (3) a flatter Philips curve means a lower inflation impulse from a lower unemployment rate, (4) with 40% of global developed market yields yielding negative appetite for USTs should remain given the positive yield on offer and (5) the fall in market based US headline inflation expectations will take some time to recover. This should mean low and range bound rates in the near-term.

HOW TO POSITION?

**Be underweight the 5yr part of the curve and hedge by being overweight long-end TIPS:** Enter 2s/30s (Nominal/Real) curve flatteners. We also like 5s/30s (Nominal swap/TIPS) flatteners because of money-market reforms. Overweight 30-year TIPS in a nominal aggregate portfolio.

**Term structure of US yields versus terminal nominal rate expectations**




Source: UBS, Bloomberg

## Can the US bond markets sell-off over the next six months?

With a sharp rally in US yields (see **Figure 1**) post the December 2015 Fed hike, investors have started to wonder... Did the Fed just hike or ease? On a more serious note, fixed income investors are wondering can the US bond market sell-off in 2016? Over the past year, we have done a more straightforward analysis and compiled a number of reasons why we thought rates should rally.

None-the-less, we find the reverse inquiry of what could push rates higher quite useful. In this analysis, we limit the reverse inquiry to **what could push rates higher over the next six months?**

Specifically, we perform a historical analysis to answer this question. In brief, we find that a typical bond market sell-off coincides with global bond markets selling off and/or central bank hiking aggressively as headline/core inflation accelerates. Additionally, this time we have the setup of very low growth and inflation expectations (i.e., TIPS breakevens) in the market. This makes certain part of the bond market more susceptible to an underperformance or outperformance.

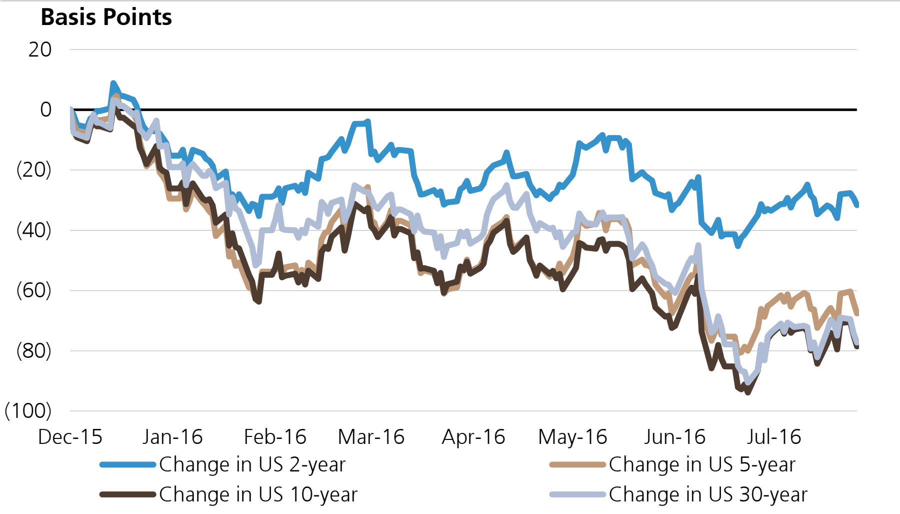
For example, UST short-end rates are more susceptible to a sell-off. On the long-end, TIPS might outperform bonds on an upside inflation surprise. We begin by reviewing why we expect US 10-year yields to move to 135bp by Dec. 2016.

## Reviewing key reasons for lower US yields over the next-six months

Among our reasons for expecting US rates to rally, a critical one is the headwind from extraordinarily easy monetary policy outside the US. In our view, the US-versus-globe monetary policy divergence leads the Fed to get more tightening per hike than was the case in the past hiking cycles (Please see [What to expect when the Fed keeps expecting]). We saw this in Q1 2016 when the dollar pushed sharply higher as global uncertainty heightened.

Along this point, in September, 2015, we had simulated two paths for the current monetary policy cycle (Please see [Big Macro 02: Is the Fed's hiking path mispriced?]).

**Figure 1: Change in UST yields since the Fed hiked on December 16, 2015**




Source: UBS, Bloomberg

The two scenarios were a) The Fed hikes gradually in a Taylor rule like framework b) The Fed postpones hikes until uncertainty dissipates and then catches up steeply in a fashion consistent with "Optimal Control" paradigm. The Fed has taken a route closer to the first approach (a) and in the aforementioned piece, we hypothesized that such an approach could lead to higher odds that intermediate and long-end bonds rally outright (and curves flatten).

Secondly we think the US terminal real rate expectations are now much lower (Please see Lower US terminal real rate expectations). Third is that the Phillips curve is quite flat and therefore the inflation impulse from a lower unemployment rate is likely to be lower in the current era. Along this point, global disinflationary forces are weighing on US inflation.

Fourth is that the global appetite for UST yields should be higher on a relative basis considering that the world is starved for positive yields. Recently, we showed that more than 40% of global developed bond yields are negative and this is weighing on US term premium. Fifth is that market based US "headline" inflation expectations have likely fallen and may take some-time to recover (See inflation section of the A cure for negative yielding global bonds). US 5y5y breakevens have remained below 2% for close to two years. It is hard to imagine inflation-linked markets remaining inefficient for such a long period.

These reasons sound adequate for low and perhaps range bound rates in the near-term. But to be rigorous in our view, we attempt to answer the reverse inquiry of what could push US rates higher. We use historical case study or what is known as the outside view as our starting framework.

## Finding coincident variables which define bond market sell-offs

As with any outside view formation, we looked at the history of UST rates going back to the 1970s. In particular, during this time frame, we looked for bond market sell-off episodes. We defined a bond-market sell-off episode as when the six month change in 10-year UST yields was positive. Specifically, we sorted for fifty of the largest bond market sell-off periods since 1970s. **During these fifty bond market sell-off episodes, we tracked changes in key monetary policy, economic and market variables.**

For the monetary policy variable, we looked at the changes in the Fed Funds rate during each of the fifty bond market sell-off periods. Similarly, in economic variables, we looked at the corresponding six-month change in the US unemployment rate, Y/Y headline CPI and Y/Y core CPI. Effectively, changes in the inflation rate are indicative of an acceleration in the inflation impulse.

In bond market variables, we looked at the corresponding six-month changes in global 10-year yields (the UK, Japan, and Germany). For an assessment of financial conditions, we also looked at the corresponding six-month changes in the USD, S&P 500 and Gold.

To summarize, we analysed six-month changes in ten variables which were coincident to the largest bond market sell-offs. A simple hypothesis suggests that given the known history of the US in the 1970s and the early 1980s, US inflation must be a key common characteristic of large sell-offs. Let us see if this hypothesis holds.

**Figure 2: Characteristic analysis of the fifty largest bond market sell-offs**

| Factor | Average six-month change in the factor over the 50 UST bond market sell-offs | % of the time factor change was similar to the average (in terms of direction) |
|---|---|---|
| 10-year UST rate | 154bp | |
| UK 10-year | 118bp | 100 |
| German 10-year | 81bp | 100 |
| Japan 10-year | 45bp | 88 |
| Trade Weighted Dollar | 3% | 84 |
| Fed Funds Change | 172bp | 76 |
| S&P 500 | 3% | 60 |
| CPI Y/Y | 0.29pp | 58 |
| Gold | 6% | 56 |
| Core CPI Y/Y | 0.13pp | 50 |
| Unemployment Rate | -0.24pp | 26 |

Source: UBS, Haver, Bloomberg; Note: Analysis done since the 1970s. UST bond market sell-off is defined as a six-month period during which 10-year yields have moved higher.

## What is the most coincident factor during a UST sell-off?

**Figure 2** shows that the characteristics of 50 of the largest bond market sell-offs since 1970. The average change in 10-year yields during these periods was more than 150bp.

In column one, we annotate the name of the corresponding monetary, economic and market variable. In column two, we show the average six-month change in each of those factors during the 50 largest bond market sell-offs. In column three, we calculate the percent of the times that the factor had the same direction as the average change.

### A Global bond sell-off

As shown in **Figure 2**, **typically when the US bond market was selling-off, it was generally certain that the UK, German and Japanese yields were also selling off.** This suggests that for longer-dated yields to sell-off it is necessary that global bond markets are participating in the sell-off. And indeed, we have seen evidence of this in the first week of August 2016. As Japanese 10-year yields sold-off 20bp on the fiscal announcement, US 10-year yields also moved higher by about 10bp (Please see Helicopter turns submarine: Japan's bond sell-off and its global effects). It is important to note in the recent JGB sell-off, JGBi breakevens did not rise, which makes sell-offs less sustainable, in our view.

In the current environment, the BoE has just eased while ECB and BoJ are likely looking to ease over the next six months or at the least continue to be accommodative. Thus from the global developed world bond market perspective, it is hard to imagine a UST yield sell-off especially as the developed world yields move lower and/or are range bound.

A key exception here is that we do expect German bond yields to move marginally higher in the coming six months. **This is one reason why we like being long 10-30year USTs versus German bunds (Please see the Global Rates Landscape).**

**Figure 3: Characteristic analysis of the ten largest UST bond market sell-offs since 1970s.**

| Factor | Average six-month change in the factor over the 50 UST bond market sell-offs | % of the time factor change was similar to the average (in terms of direction) |
|---|---|---|
| 10-year UST rate | 154bp | |
| Trade Weighted Dollar | 5.39 | 100 |
| Fed Funds Change | 300 | 80 |
| CPI Y/Y | 0.50 | 70 |
| Core CPI Y/Y | 0.74 | 70 |
| S&P 500 | 1.66 | 60 |
| Gold | 11.15 | 50 |
| Unemployment Rate | -0.19 | 40 |

Source: UBS, Haver; Note: UST bond market sell-off is defined as a six-month period during which 10-year yields have moved higher.

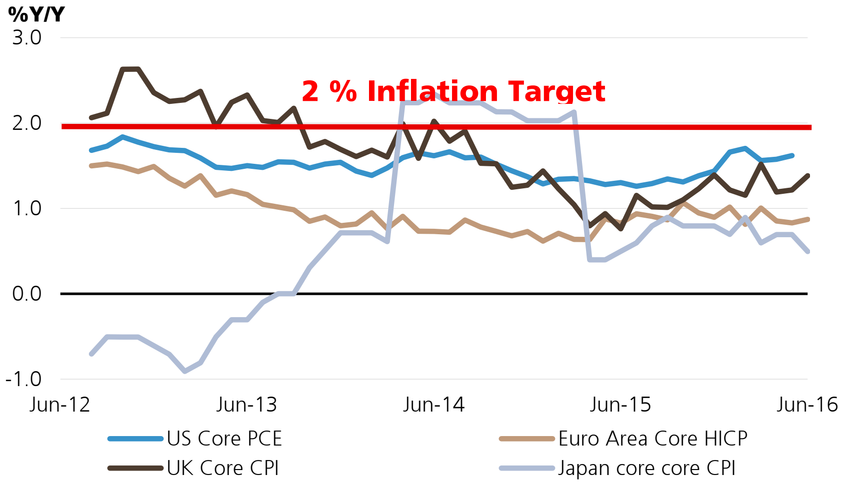
## Aggressive Fed Hikes

A second key factor in the US bond market sell-off is that the Fed gets generally hawkish and starts hiking quite rapidly. In fact during the largest fifty bond market sell-offs the Fed Funds rate had been pushed higher by about 175bp. Over the next six months, our economic team expects the Fed to hike only once provided economic data is in line with the Fed's projections. Thus, it is hard to imagine that the Fed hikes aggressively over the next six months.

## Inflation Acceleration

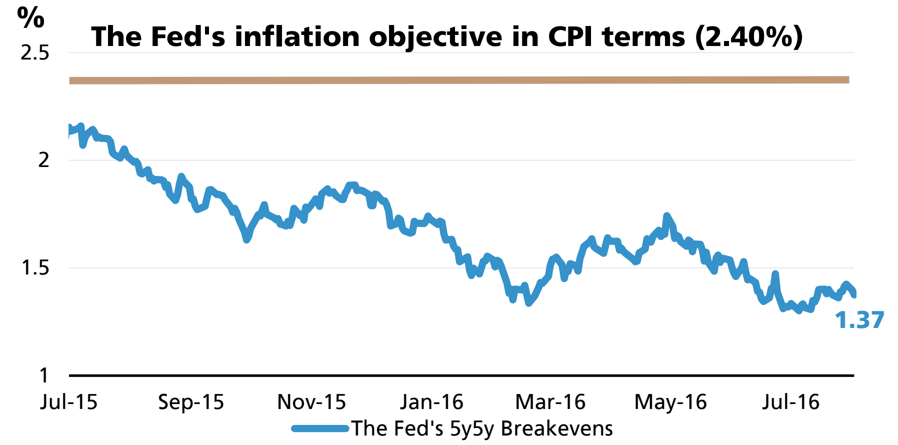
During the previous sell-offs, it was notable that core and headline CPI started accelerating. In fact, during the top ten largest bond market sell-offs (see **Figure 3**) the coincidence of accelerating inflation was much higher during the sell-offs. And as one would expect most of these bond-market sell-offs occurred during 1980-1984 – the Volcker era – and as can be seen that on average during these ten six-month episodes the Fed hiked by about 300bp. During these episodes, we did not have the relevant global bond market data. Thus, one needs to critically judge what the likelihood is for inflation to pick up over the next six months.

**Figure 4: Global developed world core inflation is well below 2%**




Source: UBS, Haver

Figure 5: US 5y5y TIPS breakevens are well below the Fed's inflation objective




Source: UBS, Federal Reserve

Over the next six months, with aforementioned dollar feedback loops and already declining oil prices, it is hard to imagine goods inflation accelerating higher. Coupled with significant declines in food futures and falling US import prices from China, the risks to the commodity components of headline inflation are to the downside, in our view. Along this point, the developed world core inflation remains well below 2% (see **Figure 4**). Thus, one needs to critically judge what the likelihood is for inflation to pick up over the coming six months.

Also we believe that the US Phillips curve is quite flat now relative to history due to globalization, technology and fiscal factors affecting healthcare inflation. Thus inflation expectations matter quite a bit for the outlook of inflation.

In terms of inflation expectations, the US TIPS market, HICPx linkers market and Japan inflation-linked bond market is priced for a persistently disinflationary period. In the case of the US, 5y5y breakevens have been below 2% for about two years (see **Figure 5**)**.** Thus, it seems less likely that either realized inflation or inflation expectations increase sharply over the next six months. That being said, low market expectations are the biggest difference now versus the past. The three sell-offs since the 2007-2008 financial crisis – in 2009, 2011 and 2013- were due to reversal of very low growth, inflation and monetary policy expectations. In light of the recent regimes, we discuss the new factors which could push rates higher.

## What's different this time that can drive rates higher?

Above we found that a global bond sell-off, aggressive Fed hikes and inflation acceleration can drive a sell-off in the bond market. All of which seems less likely to us in the coming six months. **However, in the current environment, perhaps the biggest risk to the bond market is that the market pricing of the Fed hikes and inflation is much lower than the Fed's modal expectations**. In addition, we find the following four scenarios which could push rates higher.

1. **Higher growth and inflation expectations:** An improvement in growth and inflation expectations that drives equities much stronger ushering in some curve steepness, term premium, etc. This is the most sustainable path. This can be a way that ultimately the curve leaves some room for the Fed to even hike. But it requires much stronger growth/inflation backdrop than before. Globally central bank balance sheets have grown north of ten trillion and yet we have not been able to

generate adequate growth and inflation expectation profile. Thus we still assign low probability to this outcome over the next six months.

2. **Supply driven inflationary breakout:** An inflationary breakout driven by other factors (e.g., supply bottlenecks, wages, etc.). This is the most worrisome outcome but also the least likely (link to our disinflation work). And typically such break outs are not growth positive, so the Fed may still remain on hold.

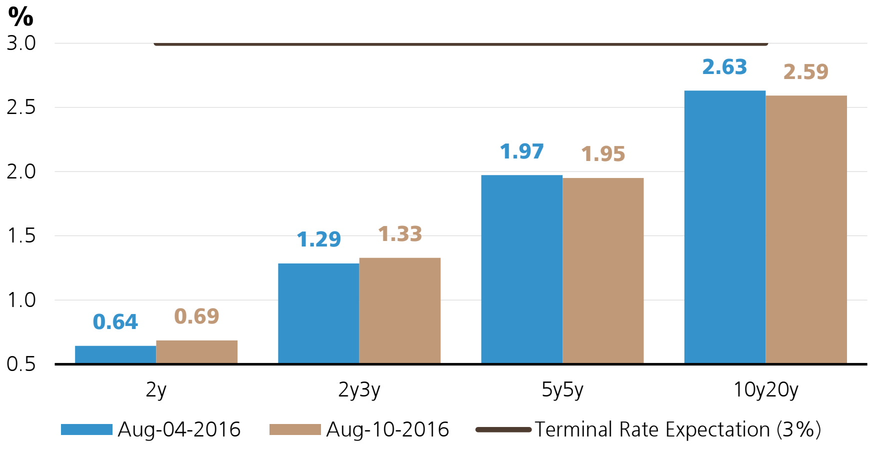
3. **Policy makers becoming proactively hawkish:** We have seen this in 2013 with the taper tantrum. The sell-offs happened but they are short-lived. The net result ends up with policy makers backtracking and yields trending lower. Also typically such hawkishness tends to be idiosyncratic of a particular central bank and not globally coordinated. Hence the rise in term premiums instigated by a central bank is easily harvested by foreign investors who are desperate for higher yields.

4. **Expensive bond market correcting:** The most expensive bond market is In Europe. There, we saw such a correction in April 2015. It did have some broad implications but it did not shake the foundation of global markets. Japan may be volatile if BOJ decides to move away from NIRP. That said, again, in the long run in the absence of inflation and growth, spikes are hard to be sustained.

**In the event of a sell-off, how to position in the bond market?**

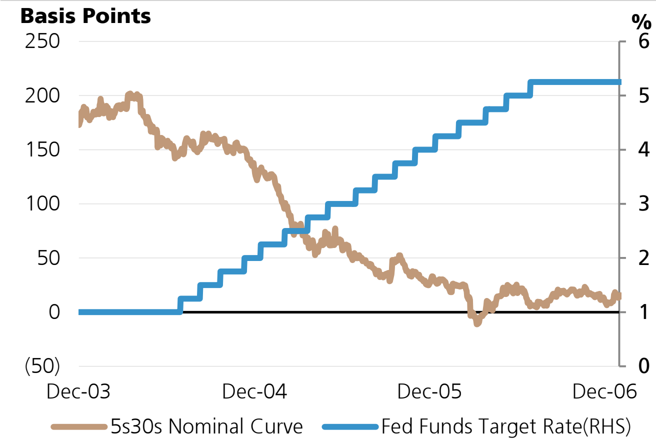
Thus, it is indeed possible for the US bond market to sell-off from a reversal of very low policy and inflation expectations. Below, we find ways in which investors can position for such repricings. **Figure 6** shows that 2y3y nominal rates are well below the Fed's terminal rate expectations while the long-end is much closer to the terminal rate. Similarly, as we saw earlier, market priced 5y5y breakevens – at 140bp – are also well below the Fed's CPI expectations and realized core inflation of 2.3% Y/Y.

**Figure 6: Term structure of US yields versus terminal rate expectation, suggests that the belly of the curve is susceptible to a sell-off**



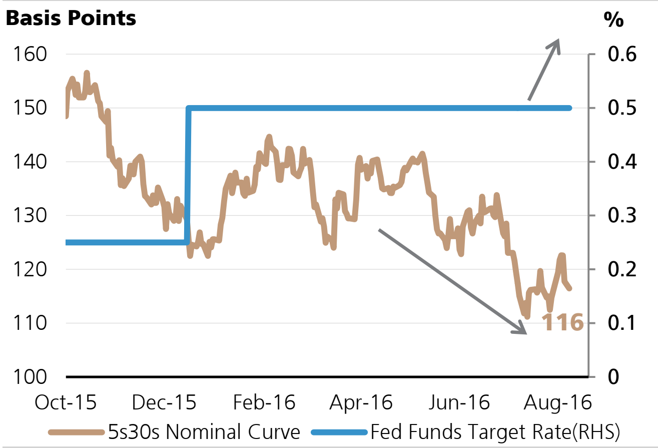

Source: UBS, Bloomberg

Figure 7: In the 2004 hiking cycle, 5s30s nominal curve flattened 200bp…




Source: UBS, Bloomberg

Figure 8: …In the current hiking cycle, the 5s30s curve still quite steep relative to the Fed's projected hiking path.




Source: UBS, Bloomberg

Thus it makes sense for investors to be underweight 5-year and under nominal securities to hedge against a shift higher in the market's expectation of monetary policy path. And also to be long the long-end TIPS – which are trading above terminal real rate expectation of 60bp - to hedge against higher than expected (i.e. breakevens) realized inflation. (For a related discussion please see Big Macro 02).

In essence, from a level perspective, the market has a very easy bar to beat. And, as we saw with better than expected June and July 2016 payroll reports, it was very easy for 5-year USTs to sell-off 10bp and US TIPS breakevens to widen 3-4bp (whereas 30-year real rates were unchanged). As such in the current environment, at the least a short-rates sell-off is much more plausible than long real rates.

In this sense, for investors who would like to hedge against a spike in rates **we recommend putting on 2s/30s (Nominal/Real) curve flatteners. We also like 5s/30s (Nominal swap/TIPS) flatteners because of money-market reforms (Please see A new source balance sheets for USTs).** Note in **Figure 7** and **Figure 8**, during rate hikes the nominal curve has tended to flatten.

### Conclusion: Flatteners and 30-year TIPS to hedge against sell-offs

In conclusion, we think long-end led bond market sell-offs – particularly in 30-year TIPS- are less likely over the coming six months. However in the pockets of markets such as in Europe or in front-end of the Treasury curve, bond market sell-offs are more likely given the market pricings. Similarly, the US market pricing of inflation is near historical lows while core CPI trends are almost 100bp higher than more pricings.

In this context, investors averse to bond market sell-offs can find interesting trades or assets allocations that shield them from bond market selloffs. Such trades include buying the long-end of the US TIPS curve, and buying 30-year US TIPS or nominals versus comparable German bunds. Given the very shallow hiking path in the US, we think investors should also consider flatteners such as selling 2-year Treasuries and buying 30-year TIPS.

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