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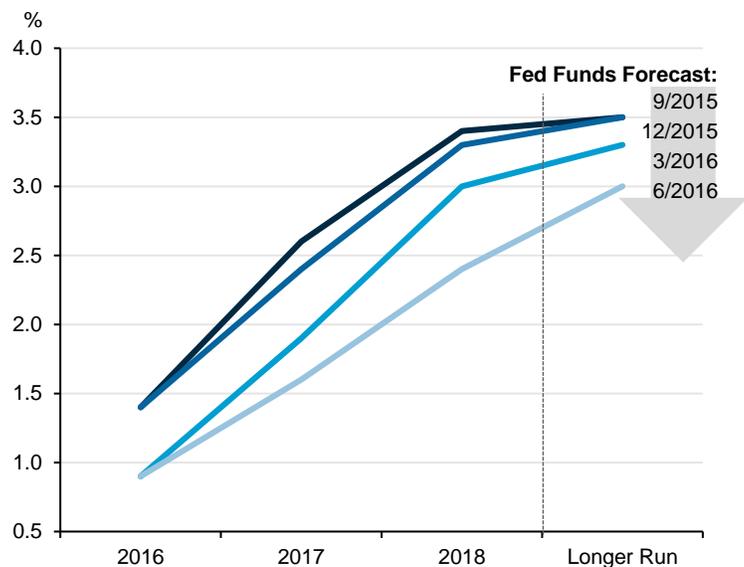
## Central Banks of the World: Yield to the Markets!

*Despite a relatively steady economic backdrop, markets have been volatile over the past year. While some may blame it on China's economic slowdown, falling commodity prices, or more recently Brexit, this paper discusses the possible culpability of overzealous monetary policy. Has the Fed been too hawkish? And, despite the best of intentions, are the aggressive policy steps taken by the Bank of Japan and the European Central Bank perhaps inflicting more harm than good? We consider these questions, where policy is headed next, and why this backdrop may be good for the bond market.*

### The Fed Scales Down its Rate-Hike Trajectory

The Fed backed away from initiating its rate hike cycle in September 2015 in response to a rise in market volatility and a fairly stiff tightening of financial conditions (see the charts on the following page). Although the Fed ultimately hiked in December 2015, it has since adopted a heightened sense of caution, as indicated by the moderation in its path for expected rate hikes that continued at the March and June meetings in 2016 (see the chart below).

**THE FED'S  
MODERATING  
TRAJECTORY OF  
FORECASTED  
RATE HIKES.**



Source: Federal Reserve as of July 2016.

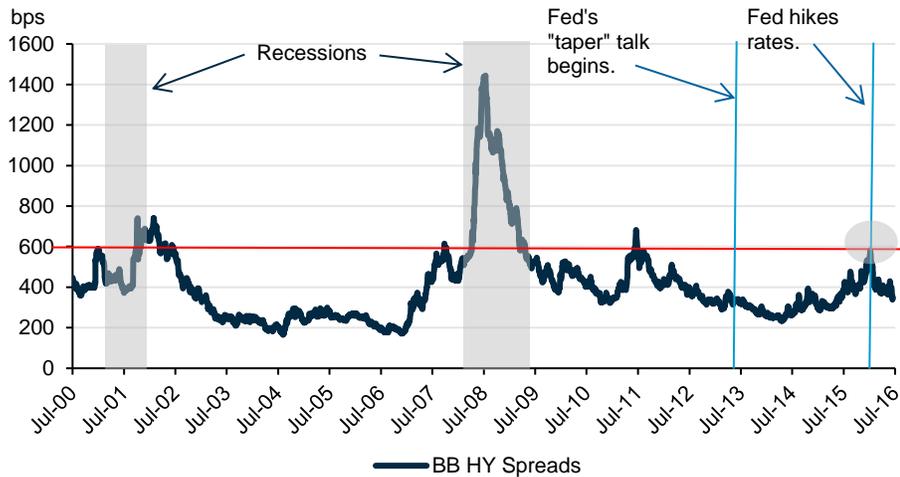
The Arrival of the Fed's Rate Hike Cycle in 2015 Brought Plenty of Stress to the Financial Markets

**1. THE EQUITY MARKET EXPERIENCED TWO STEEP DECLINES BEFORE THE FED FINALLY DROPPED ITS "DOTS" IN MARCH 2016.**



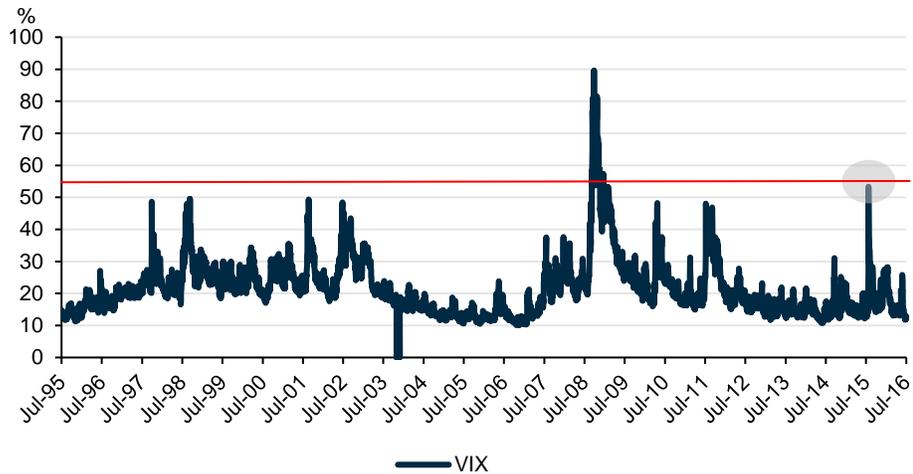
Source: Bloomberg as of June 2016

**2. FEAR OF THE FED PUSHED CREDIT SPREADS TO THE BRINK OF RECESSIONARY LEVELS.**



Source: Bloomberg as of July 2016

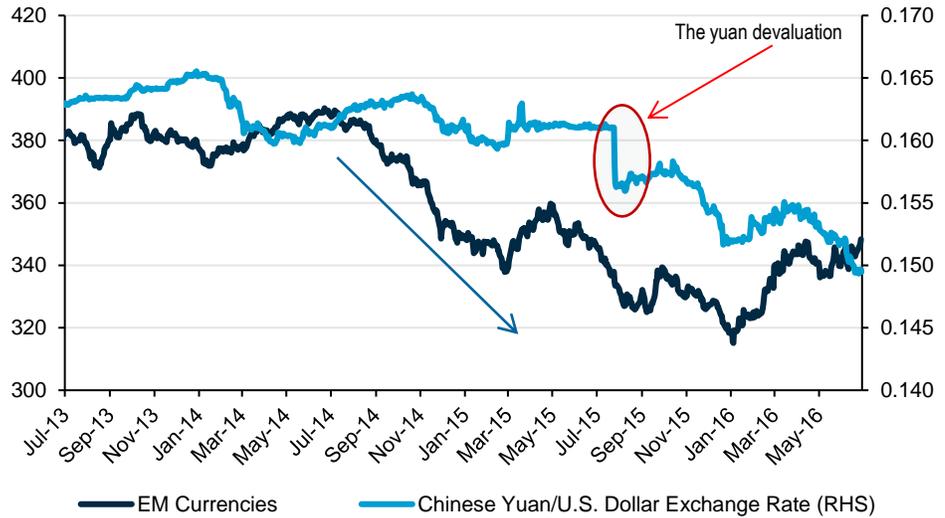
**3. ON AN INTRA-DAY BASIS, THE VIX EXPLODED TO LEVELS ONLY SEEN DURING THE GREAT FINANCIAL CRISIS OF 2008.**



Source: Bloomberg as of July 2016

(Continued) The Arrival of the Fed's Rate Hike Cycle in 2015 Brought Plenty of Stress to the Financial Markets

4. WHILE MANY EM CURRENCIES HAD BEEN DECLINING SINCE AROUND THE TIME THAT THE FED TAPERED ITS BOND PURCHASES, THE CHINESE YUAN HAD BUCKED THE TREND—UNTIL AUGUST 2015, WHEN EVEN THE YUAN WAS FORCED TO DEVALUE AMID RISING RATE-HIKE EXPECTATIONS.

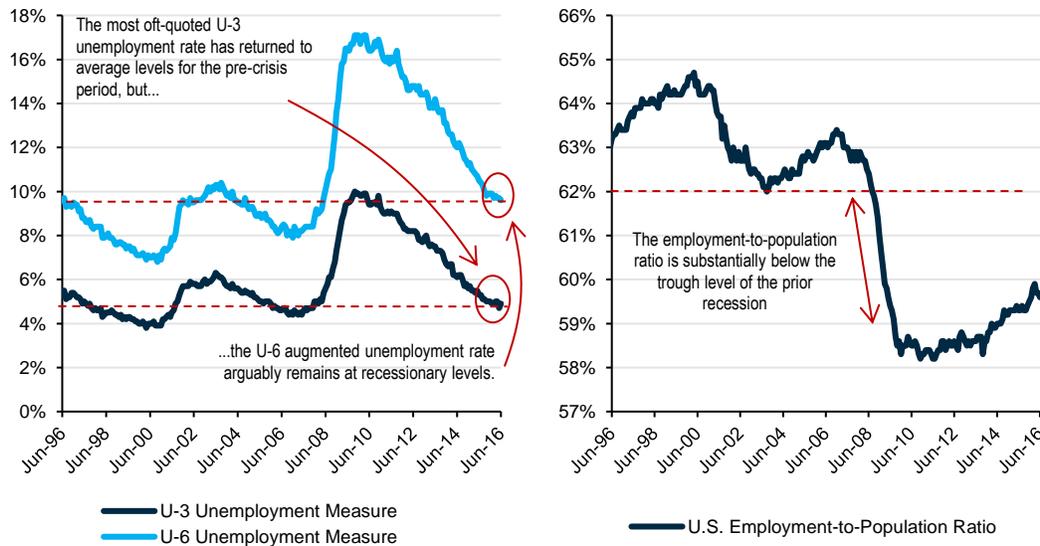


Source: Bloomberg. EM currencies represented by the J.P. Morgan EMLI Plus Index as of July 2016.

The Extra Slow Mo' Fed: Weak in the Knees, or the Better Part of Valor?

In our [most recent installment](#)<sup>1</sup> on the secular decline in interest rates, we posited that the configuration of aging demographics, high debt loads, yawning international excess capacity, as well as below target inflation and low growth, all point toward a potentially lower equilibrium level of rates and that, as a result, maybe the Fed should hold its fire. **A range of economic indicators (as observed in the following charts) arguably corroborate the idea that the economy is not at risk of overheating even with today's ultra-low level of rates and, therefore, may not require rate hikes at all.**

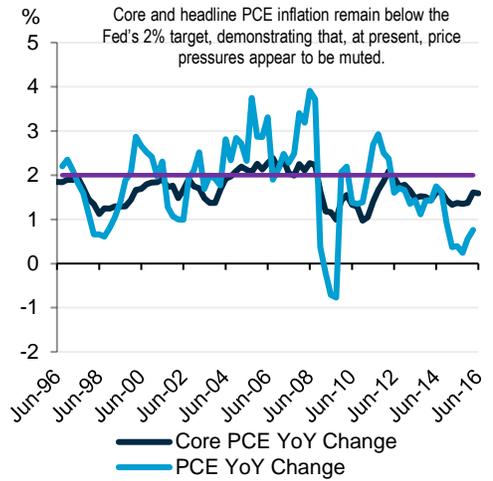
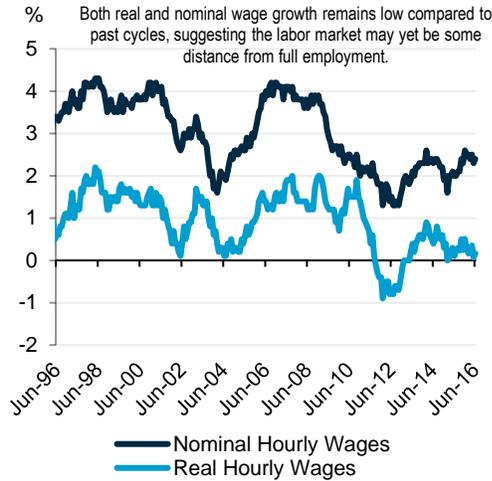
ARE WE AT FULL EMPLOYMENT? PROBABLY NOT AND MAYBE NOT EVEN CLOSE.



Source: Bloomberg as of June 2016

<sup>1</sup> Please visit PrudentialFixedIncome.com to read "The Totally Mad World of Low Rates."

ARE WE OVERHEATING, OR EVEN CLOSE TO OVERHEATING? PROBABLY NOT.



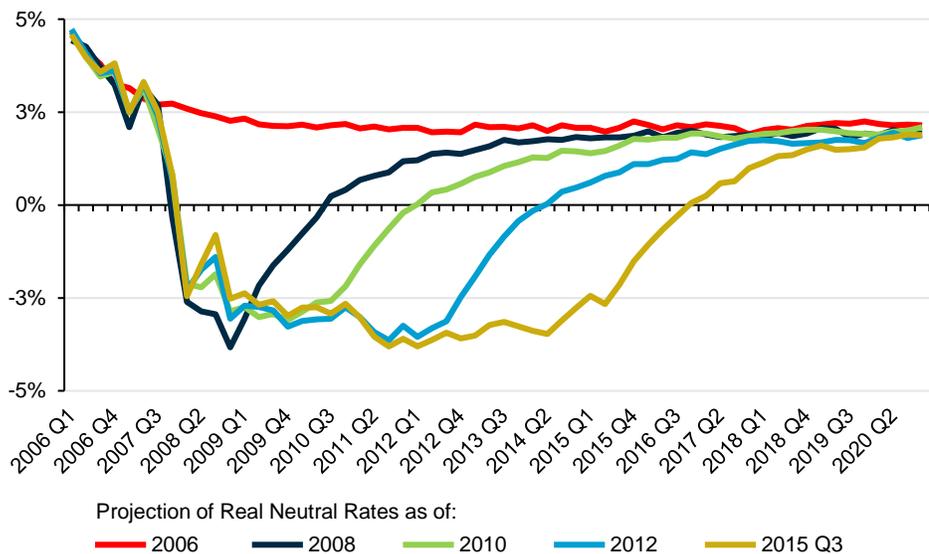
Source: Bloomberg as of June 2016. Hourly wages refer to average hourly earnings and real wages are deflated by the core CPI-U index. The PCE index refers to the Personal Consumption Expenditures Price Index.

### Budding Theoretical Support for an Ultra-low Fed Funds Rate

Some recent Fed research supports the conclusion that the theoretical level of the neutral Fed funds rate has dropped and that, consequently, we may be much closer to neutral than previously thought. In one of the more dovish projections, a 2015 paper from San Francisco Fed researcher Vasco Curdia suggests the real neutral rate in recent years has been well into negative territory at -3% to -4% (see chart below). **With inflation currently running between 1% and 2%, that would imply a negative nominal neutral rate centered around -2.5%.**

The following chart from Curdia's paper shows estimates of the real natural rate of interest. The rate declined into deeply negative territory during the 2008 recession and remained there as of the writing of his paper in October 2015. **Additionally, projections of the future path have persistently over-estimated the speed at which the natural rate could rise towards long-run historical levels. According to Curdia, "This evidence suggests that interest rates may remain low longer than what this model currently projects."** Is this yet another indication that the Fed should only hike with the utmost caution, if at all?

ESTIMATES OF THE REAL NATURAL INTEREST RATE FELL DEEPLY INTO NEGATIVE TERRITORY AFTER THE GREAT RECESSION.

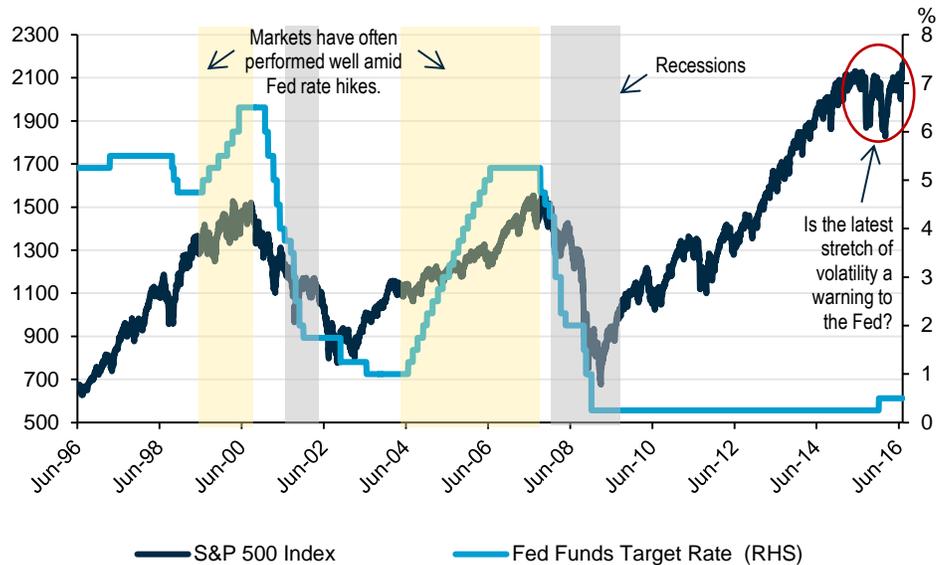


Source: San Francisco Federal Reserve as of October 2015

### The Markets as a Final Litmus Test: Maybe Rate Hikes Should be Painless

While the Fed was criticized by some for yielding to the stock market in September 2015, the following chart suggests that, in fact, *risk markets have generally fared well during past rate-hike cycles—except at the late stage when rate hikes were about to push the economy into a downturn.*

**U.S. STOCKS HAVE GENERALLY PERFORMED WELL IN RATE-HIKE CYCLES.**



Source: Bloomberg as of June 2016

*In summary, contrary to the pundits who see the Fed as being behind the curve, a broader reading of the current circumstances suggests that the prudent course of action for the Fed may be to simply hold its fire. Hiking rates almost smacks of fighting the last battle against high inflation despite the U.S. and global economic realities of subpar growth and inflation, as well as warning signs from the global markets.*

### Europe and Japan: Hell Below Zero

In the immediate wake of the financial crisis in 2009, U.S. rate cuts and QE were followed by renewed buoyancy in the credit and equity markets, a steep yield curve, and then a gradual economic recovery. If rate cuts, lending programs, and QE in the post financial crisis environment helped to right the markets and the U.S. economic ship, why have we recently received a “thumbs down” signal from the Japanese and European equity markets in general and the financials in particular (see the charts on the following page)? While some of the ECB’s and BoJ’s basic policy steps are similar to those that the Fed implemented after the financial crisis—lower official rates, introduction of financing programs, and central bank bond purchases—this is not an “all else equal” comparison.

### The U.S. Government Liquefied the Banks, Guaranteed their Liabilities, Stress Tested Capital

The U.S. Treasury’s Capital Purchase Program injected mezzanine equity into the banks in the form of preferred stock to insulate bond holders from the risk of principal losses. Furthermore, the FDIC’s TLGP debt guarantee program allowed banks to side step questions about the ultimate fate of their non-performing loans (NPLs), capital adequacy, and liquidity, which enabled them to immediately issue debt at low, government agency-like spreads for a modest fee. **In short, in response to the dire post-Lehman circumstances, U.S. authorities went to unprecedented lengths to not only liquefy the banks, but more importantly, to also reduce the perceived default risk of bank debt.** Equity investors were undoubtedly at risk of dilution, but with a steep yield curve, wide credit spreads, and low liability costs, the profit potential for banks was also arguably quite favorable. With the advent of capital stress tests in 2009, the process of cleaning up the banks was scoped out in short order.

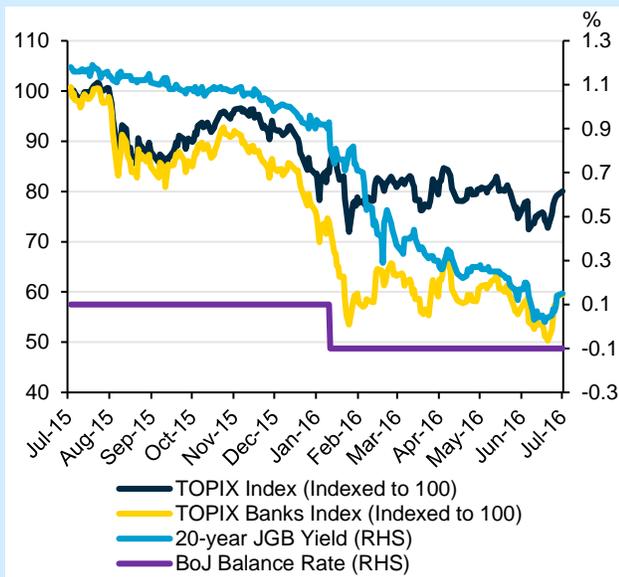
Sequencing Matters

In the U.S., the post-crisis priorities were to immediately stabilize the markets and the banks, stimulate growth, and then work on the fiscal picture. In Europe, by contrast, fiscal consolidation was emphasized from the start, and the pressure for further spending cuts and/or tax increases continues in many Eurozone countries to this day, creating a formidable headwind to growth. Second, rather than cleaning up the banks with a “one and done” process, cleaning up European banks has been more of a rolling effort. All said, this leaves a chicken and the egg conundrum—is credit growth slow because the banks don’t have the capacity to lend, or is credit growth slow because economic growth is slow? In the end, European policy makers are attempting to compensate by papering over their problems with perhaps overly aggressive monetary policy.

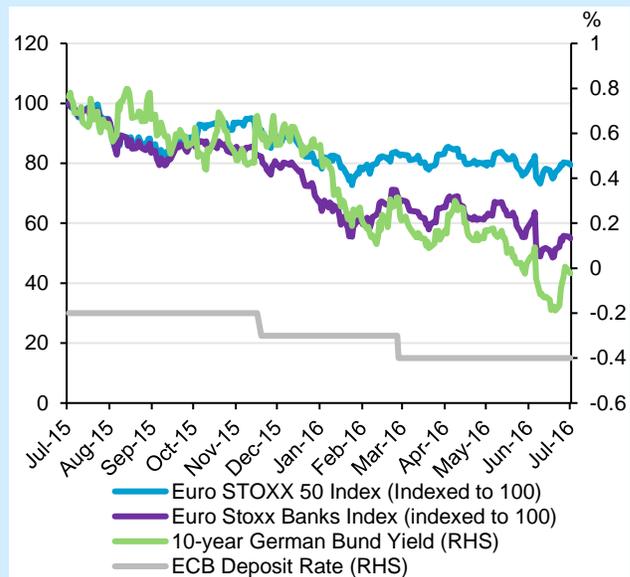
Unlike the Fed’s Zero Rates and QE Blitz, the ECB and BoJ’s Policy Moves Have Coincided with Falling Stock Prices—Especially for Financials. Is Something Amiss?

As a result of the BoJ’s bond buying program and negative-rate policy that was adopted earlier this year, JGB yields have plummeted. Meanwhile, Japanese stocks—and especially those for the banks—have taken a nose dive.

It has been a similar situation in Europe: aggressive monetary policy has depressed interest rates and stock prices have fallen, especially those for the financials.



Source: Bloomberg as of July 2016.

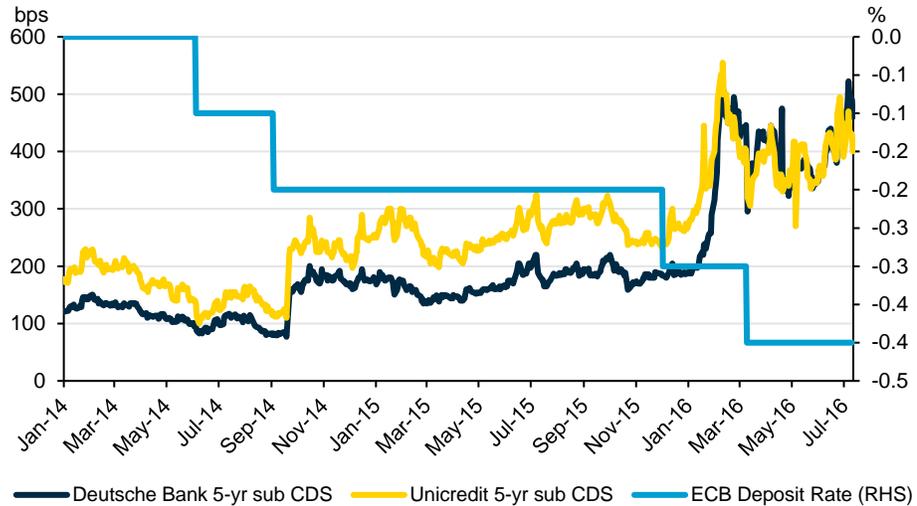


Source: Bloomberg as of July 2016.

Bail-in Uncertainty Lifts Risk Premiums on Equity, Senior and Subordinated Bank Debt

While U.S. authorities took steps immediately following the 2008 crisis to support the banks and insulate bondholders, by contrast, the evolving regulatory framework in Europe favors hair-cutting bondholders as needed to recapitalize defunct banks. ***This fear of bondholder losses may explain why many financial institutions in Europe are seeing their cost of capital rise—especially the cost of equity and subordinated debt—despite the drop in administered rates and government bond yields (see the following chart).***

EUROPEAN BANK CREDIT SPREADS HAVE WIDENED AS THE ECB'S DEPOSIT RATE HAS FALLEN.



Source: Bloomberg as of July 2016

## Let the Confiscation Begin: Further Ramifications for Financial Institutions

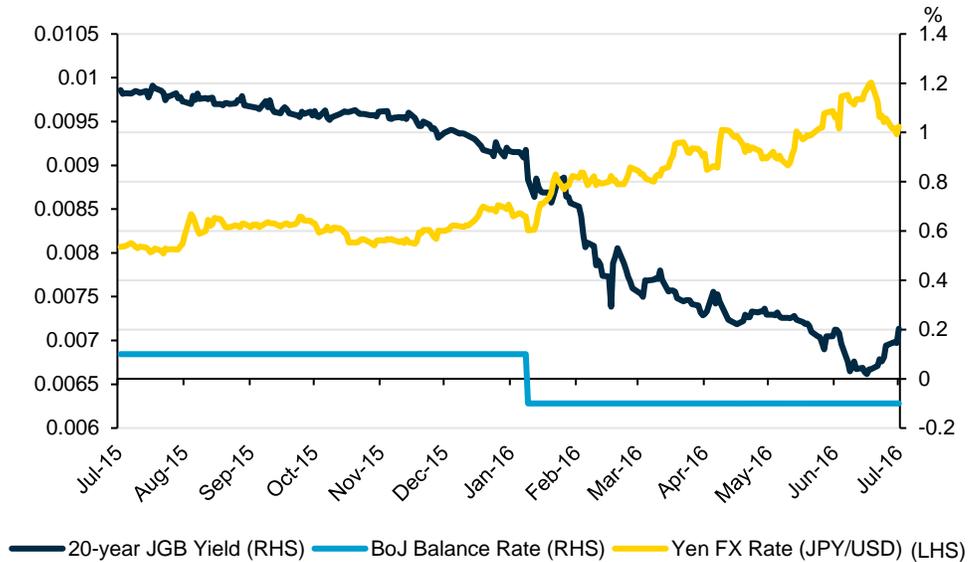
**Aside from sticky liability yields and lower asset yields, there are other potentially corrosive impacts on banks from the current negative rate / QE regime.** First, since yields are at record lows, when an investor subject to taxation sells a bond at current market prices, they almost certainly will realize a capital gain on which they must pay taxes. Whether this is a plus or minus for the institution will depend on their specific tax situation.<sup>2</sup> **Going forward, however, the cash received in payment for the bonds will now effectively be taxed via the negative interest rate on excess reserves.**

This creates a hot potato effect, wherein institutions are motivated to get rid of the cash to avoid the negative interest-rate charge by either finding an investment with a positive expected return, or paying down liabilities. However, two obstacles limit banks' options for investing the money. First, since rates are unnervingly low, bank portfolio managers may be reticent to buy bonds and risk future capital losses if and when rates rise. Second, loan growth is slow and NPLs are high, which may limit banks' ability or interest to expand their loan book. **This leaves shrinking the balance sheet by paying down liabilities as a leading option. Of course, banks shrinking their balance sheets should be expected to generally restrict the economy's rate of growth, which runs counter to the central bank's intention to stimulate growth through credit creation.**

While on the one hand it is possible that investors could send their money out of the yen and Eurozone markets in search of higher returns abroad, the fact of the matter is that **when financial institutions' earnings prospects are reduced, they may feel the need, or may be forced as a result of their rising capital requirements, to reduce their risk profile. This could motivate them to hedge their foreign currency denominated investments, which would tend to push up the value of their own currency and could damage economic competitiveness and dampen the central banks' ability to achieve their inflation targets.** While this phenomenon may be working to some extent and contributing to the resilience of the euro, in Japan, it already appears to be in full swing as displayed in the following charts.

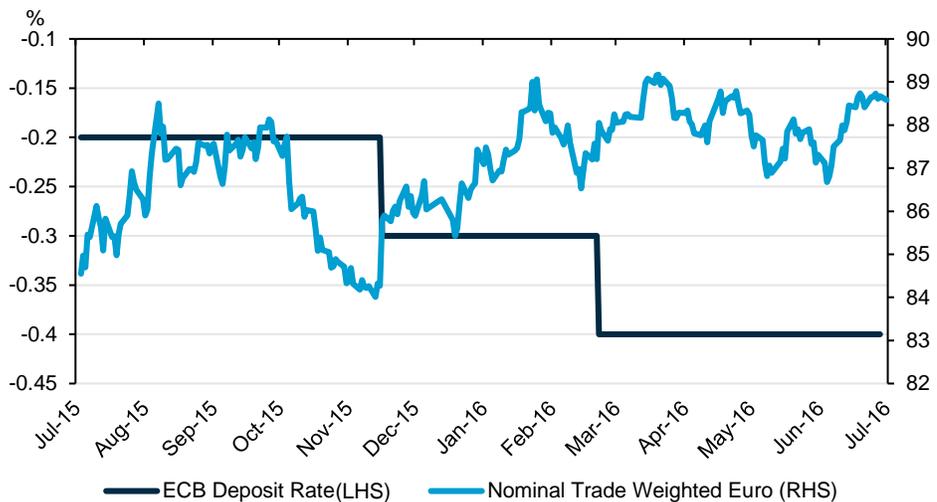
<sup>2</sup> Selling the bond into an elevated QE bid pulls forward in time the payment of a tax liability, which, all else equal, would represent a loss in present value terms for the institution or individual paying the tax. However, if they are taxed at a lower rate on the capital gains than ordinary income, they may save more in taxes than they would lose in terms of time value.

IN JAPAN, THE YEN HAS GONE ON A TEAR AS INVESTORS AND FINANCIAL INSTITUTIONS HAVE SEEN THEIR EARNINGS OUTLOOK FADE THANKS TO FALLING JGB YIELDS AND NEGATIVE SHORT RATES.



Source: Bloomberg as of July 2016

THE EURO'S RESILIENCE, DESPITE THE ECB'S PROGRESSIVE RATE CUTS INTO NEGATIVE TERRITORY, COULD BE THE RESULT OF INVESTORS HEDGING CURRENCY RISK.



Source: Bloomberg as of July 2016

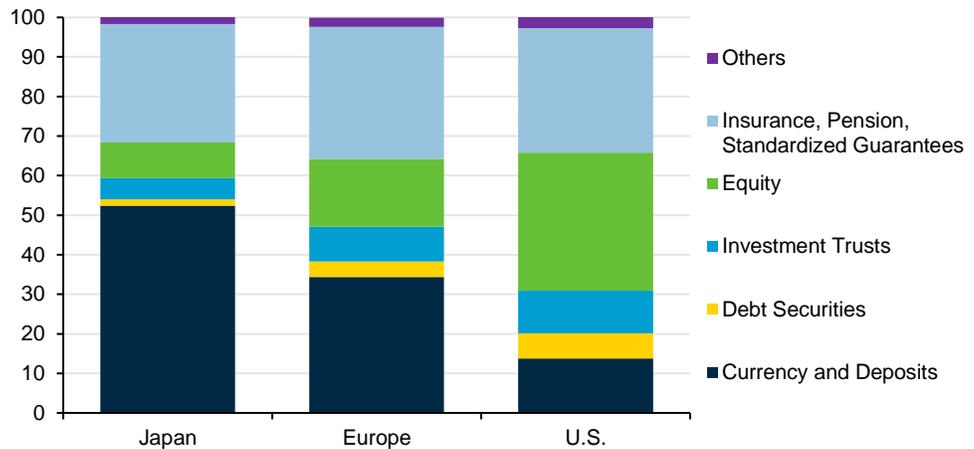
**So to recap, the ECB and BoJ's efforts to reach their inflation targets through QE and negative rates may have an adverse effect on financial institutions through a compression of net interest margins (NIMs) and therefore expected earnings as: 1) market yields on new investments are depressed by QE; 2) liability yields are sticky on the downside and, therefore, lag the decline in asset yields; 3) liquid, high-quality assets on banks' balance sheets at higher book yields are pulled out of the system via ECB and BoJ purchases; 4) taxes are levied on the gains; 5) higher-yielding book assets sold to the central banks are likely replaced with lower-yielding assets for those institutions that reinvest and with cash that is negative yielding for the (likely Northern European) institutions that get stuck with the excess reserves.**

### Ultra-low Yields Also Hurt Savers, Pension Funds

More broadly, the investment prospects of individual savers, insurance companies, and pension funds have dimmed as yields have compressed towards, or below, zero. While the increase in debt prices may theoretically provide some positive wealth effect, lucid investors will likely recognize that their bond price windfall is simply a tax on their future earnings potential. And for savers who are cash rich, as is the case in aggregate in Europe and Japan (as observed in the following chart), the advancing reality of low or negative returns on their bond portfolios and negative returns on their cash balances for perhaps the foreseeable future would seem almost certain to have a dampening effect on

economic sentiment and, ultimately, on the respective economy's rate of growth. And this, too, will serve to depress interest rates.

SAVINGS COMPRISE A SIGNIFICANT SHARE OF HOUSEHOLD ASSETS IN EUROPE AND JAPAN.



Source: Bank of Japan published on June 22, 2016. Data as of March 31, 2016 for U.S. and Japan and as of December 31, 2015 for Europe.

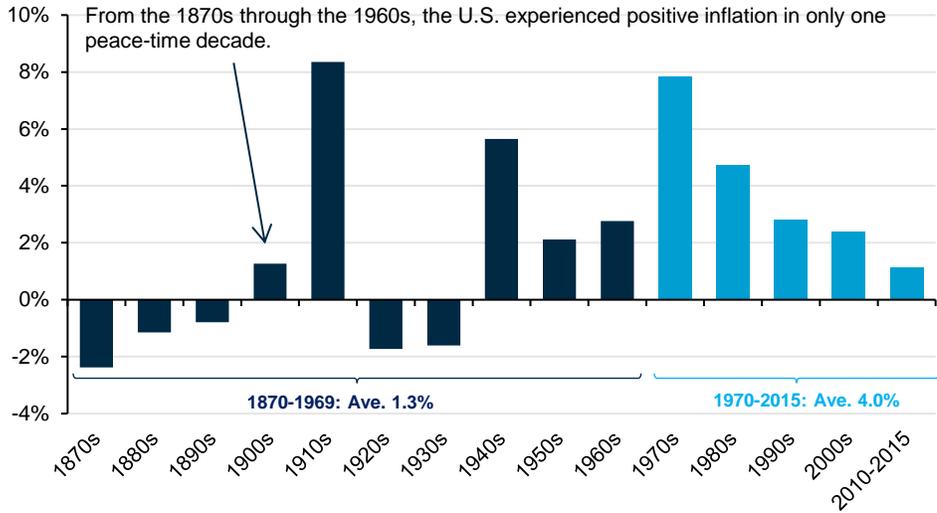
### If Negative Rates and QE are Hurting, What Might be a Better Approach?

A few twists on the current policy framework might help boost the system. We elaborate briefly on these prescriptive points before reverting towards what we think are, in fact, the much more likely policy outcomes given the current trajectories of the ECB and BoJ. We conclude with the resulting investment implications.

**I. Mark to reality—Acknowledge that neither growth nor inflation can be sustainably boosted toward unnatural targets via aggressively accommodative monetary policy.**

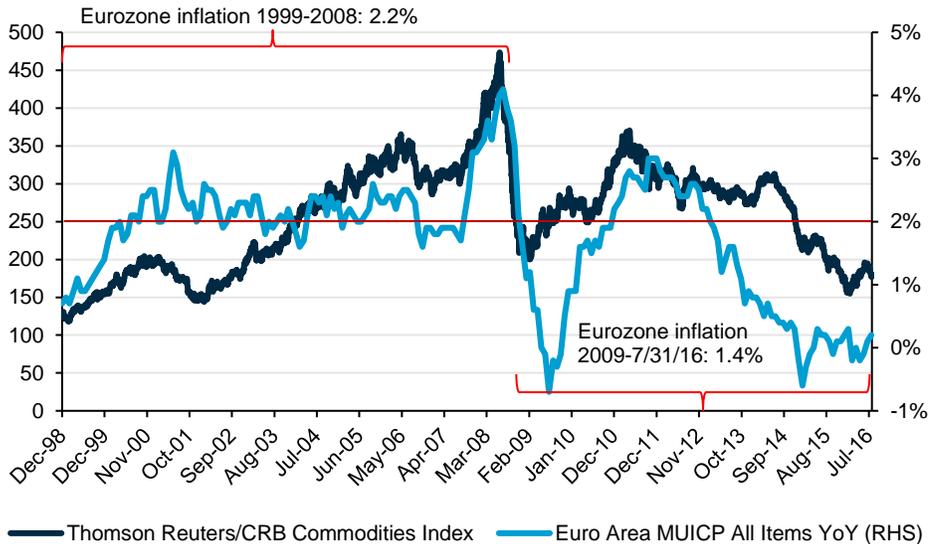
Central banks cannot dictate a higher growth rate over the long term—this can only result from structural factors beyond the central banks' control. So in the absence of an immediate risk of recession, growth should probably not drive monetary policy. As for inflation targets, when inflation was clearly too high, targeting 2% inflation from the topside worked well to guide down inflation expectations. But now that *price stability* has been achieved, central banks are running into a historical reality that should come as no surprise: in the absence of unusual events, inflation in developed countries tends to be low, if not negative. Just looking at the U.S. as a case in point, prior to the inflation bubble of the 1960s and 1970s, barring world war, inflation has been negative on average, as observed in the following chart. The emerging reality observed in the following charts is that **the central banks cannot reasonably force inflation to run at 2% in Japan or the Eurozone given the structure of their economies.** Their insistence on trying to achieve the unnatural and / or unachievable via QE and negative rates may simply be counter-productive, creating distortions in the markets and economy without the commensurate benefits.

MUCH OF THE DROP IN INFLATION OVER THE LAST 35 YEARS REPRESENTS NO MORE THAN A RETURN TO THE LOW INFLATION LEVELS THAT PERSISTED FOR NEARLY A CENTURY PRIOR TO THE 1960S IN THE U.S.



Source: MeasuringWorth and Prudential Fixed Income as of July 2016. \*Period from 2010-2015.

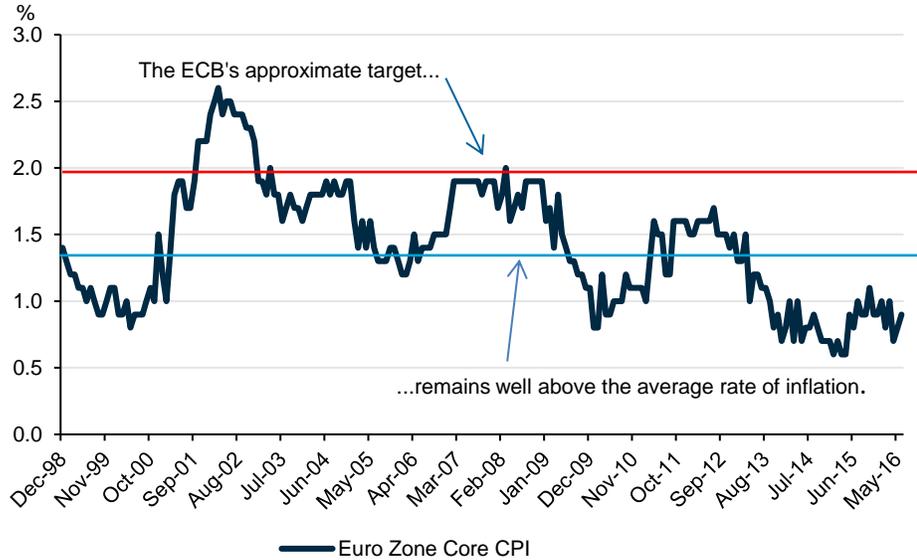
ALTHOUGH EUROZONE INFLATION AVERAGED 2.2% DURING THE COMMODITY BULL MARKET OF 1999-2008, IT HAS SINCE AVERAGED ONLY 1.4%.



Source: Bloomberg as of June 2016

Despite very buoyant growth during much of the life of the Eurozone project, the following chart shows that its core rate of inflation (perhaps a better measure of the underlying inflation dynamic), has averaged just above 1% and almost never touches, let alone exceeds, the ECB's target of "close to, but just below 2%."

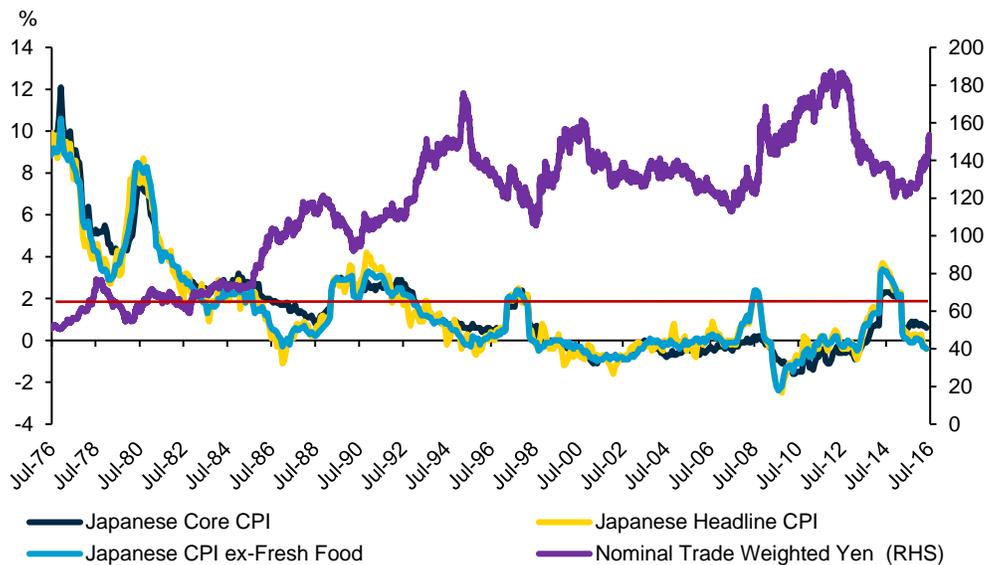
**EUROZONE CORE INFLATION HAS GENERALLY REMAINED WELL BELOW THE ECB'S TARGET OF BELOW, BUT CLOSE TO, 2%, AVERAGING 1.4% DURING THE LIFETIME OF THE EURO.**



Source: Bloomberg as of June 2016

The prospects for achieving 2% inflation look even more challenging in Japan. The following exhibit shows three measures of inflation—the headline year-over-year rate, an ex-fresh food rate (the Bank of Japan’s preferred measure) as well as a core ex-food and energy measure. The last few years should have been very conducive to pushing up inflation in Japan, given the strong downdraft in the yen during the initial leg of “Abenomics.” Nonetheless, judging from the current trajectory, the likelihood of achieving an average inflation rate of 2% looks quite remote.<sup>3</sup> This is especially the case if the currency resumes its multi-generational trend of appreciation, which, given Japan’s ongoing strong current account, would seem quite plausible.

**THE LIKELIHOOD OF JAPAN ACHIEVING AN AVERAGE INFLATION RATE OF 2% LOOKS REMOTE.**



Source: Bloomberg as of July 2016

<sup>3</sup> The increase in inflation observed in mid-2014, similar to the increase in 1997, was due to an increase in the consumption tax.

**II. Leave interest rates at nominally positive levels—i.e., 10 bps—or zero; but do not cut into negative territory.**

Running negative rates seems counterproductive, net-net, working as a tax on the private sector that harms investors, savers, and financial institutions. It also arguably crosses the line from monetary policy (controlling the supply of money) to fiscal policy (levying taxes).

**III. Dramatically reduce or stop buying bonds.**

In contrast to the 2009 situation in the U.S. where QE served to liquefy the markets without depressing yields, in the cash rich yen and euro markets—current account surplus currency areas and, in aggregate, nations of savers—the central banks' aggressive buying seems to simply front run native investors, worsening their financial situations by depressing the earnings prospects of individuals, pension plans, and financial institutions alike. The private sector's investment and earnings outlook could benefit, perhaps ironically, if the central banks simply curbed their asset purchases and allowed market yields to rise.

**IV. If needed, continue term-lending programs at zero or negative interest rates in order to stimulate growth and investment.**

We would note, however, that similar to charging negative rates on deposits, essentially using taxpayers' money to pay financial institutions to borrow—i.e., offering negative interest-rate loans—arguably crosses the line into fiscal policy and, thus, may represent another form of mandate drift. If these economies may in fact already be growing at a trend rate, we would question whether such aggressive measures are really warranted.

In short, at present the BoJ and ECB appear to be shooting for unrealistic inflation targets and ignoring the fact that their economies may already be growing at a trend pace. In the process, they may be doing more harm than good by dampening the investment prospects of domestic investors, squeezing the margins of their financial institutions, and perhaps even driving them to shrink their balance sheets.

### Stop the Presses—Late Breaking News: Central Banks Yielding to the Markets?

At the **Bank of England's** August 4th, 2016 meeting, the BoE opted to cut rates and announced bond buying and bank lending programs. Along the lines of the prior discussions in this paper regarding the ECB and BoJ, the BoE bond purchases may not be helpful in a market already yielding as little as the sterling bond market. On the margin, the lending program may be helpful.

**Another silver lining: according to their statement, possibility for further rate cuts notwithstanding, the BoE does not expect to cut the base rate into negative territory.** An additional positive in the case of the UK: they are a current account deficit / net borrower country, which makes central bank bond buying less damaging, in all likelihood, than in the current account surplus / net saver cases of the Eurozone and Japan. Bottom line: Whether they help the UK economy or not, the combination of programs announced are, on balance, likely to depress rates and, therefore, be bond market positive.

At the **BoJ's** July 29 monetary policy committee meeting, Governor Kuroda **called for a comprehensive assessment of their policy framework.** Do they think they may be using the wrong tools, or might they even find that their inflation target appears unreasonable? They have been more circumspect in their use of negative rates than the ECB and have marginally reduced the duration of their purchases, suggesting they may have reservations either about the reasonableness of the inflation target or the tools in use. Although some of the Governor's comments suggest confidence in the tools they are using, and, therefore, do not suggest that they are close to a policy reversal, only time will tell.

### The Aggressive ECB and BoJ: What's the Upshot?

If the ECB and BoJ's policies are dampening the outlook—despite the fact that they clearly must think the policies are helping—it stands to reason that the policies will likely continue, if not intensify, until the policy makers arrive at the conclusion that the policies are no longer useful or needed. In the meantime, rates could remain incredibly low and/or negative for years to come. To the extent that the policies are a headwind for financials, which are also facing various regulatory challenges, their equities may remain depressed.

## Conclusion

The G-3 central banks' efforts to be proactive in achieving their objectives by hiking rates in the case of the Fed, and through aggressive easing measures in the case of the BoJ and ECB, may be backfiring. At least in the case of the Fed, last year's market volatility as well as some of the recent moderate economic data fortunately seems to have convinced them, at least for the time being, to scale back their aggressive rate-hike ambitions and to proceed with caution.

In the cases of Japan and Europe, however, they appear to be relatively undaunted in their aggressive bond buying programs and moves into negative-rate territory and perhaps even oblivious to the fact that they may be contributing to, or even causing, a mini-vicious cycle in the financial markets by damaging the expected earnings streams of financial institutions, savers, and investors. And in the pursuit of what? Targeted levels of inflation that may not be reasonably achievable. To the extent that they realize their policies may be counterproductive and take subsequent remedial steps—such as widening their inflation target bands to encompass a more reasonable inflation level, ending the negative interest-rate charges on excess reserves, and dramatically reducing, or ending, their asset purchase programs—the negative feedback loop could presumably be interrupted. However, given the institutional momentum and difficulty in changing an established course, a more likely outcome is simply a measured persistence in the current policies.

So where does this leave the fixed income investor? Despite this challenging policy backdrop, we continue to see a generally productive environment for bond market investing, albeit with the likelihood of episodic volatility. While we expect G-3 yields to remain uncomfortably low, investors will profit from rolling down the yield curve and, more importantly, benefit from the generous spreads available in the non-government sectors. Furthermore, the confusion created by this unprecedented backdrop is likely to continue to create above-average opportunities to add value through active management.

To the extent that the BoJ and ECB's policies are damaging their economies—and to the extent that the Fed may target an unduly aggressive rate-hike trajectory—the outlook for equities may be below average. In the end, the combination of slow growth, low rates, and wide spreads should allow the higher yielding fixed income products to post returns rivaling those of equities in the quarters and even years ahead.

In terms of currencies, the potentially corrosive elements of the BoJ and ECB policies could lead to capital repatriation and perhaps ironic strength in the euro and yen, which would both damage the growth outlook and impede progress towards achieving their inflation targets. The Fed may also contribute to a weaker dollar / stronger euro and yen dynamic to the extent that its rate hike path continues to moderate.

## Market Conclusions Over the Next Six to 18 Months

### Base Case Policy Expectations

- Very slow or no rate hikes from the Fed
- Current trajectory of negative rates and aggressive QE from the ECB and Bank of Japan
- Uneven progress on deficit reduction and structural reform in Japan and the Eurozone

### Base Case Expectations for Markets

- Low and range bound government bond yields
  - Bunds and JGB 10-year yields +/- 0.5%
  - U.S. Treasury 10-year yield range of 0.75% - 2.25%
- Volatile, but ultimately, range bound spreads in the non-government sectors, hence substantial ongoing positive excess returns on average.
- Stable to weaker U.S. dollar
- Headwinds for non-U.S. developed equity markets
- Risk of above-average volatility for all markets

## Notice

Source(s) of data (unless otherwise noted): Prudential Fixed Income as of August 2016.

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