PGIM FIXED INCOME

Perspectives

June 2015

Arvind Rajan
Managing Director and Head of Global and Macro
PGIM Fixed Income

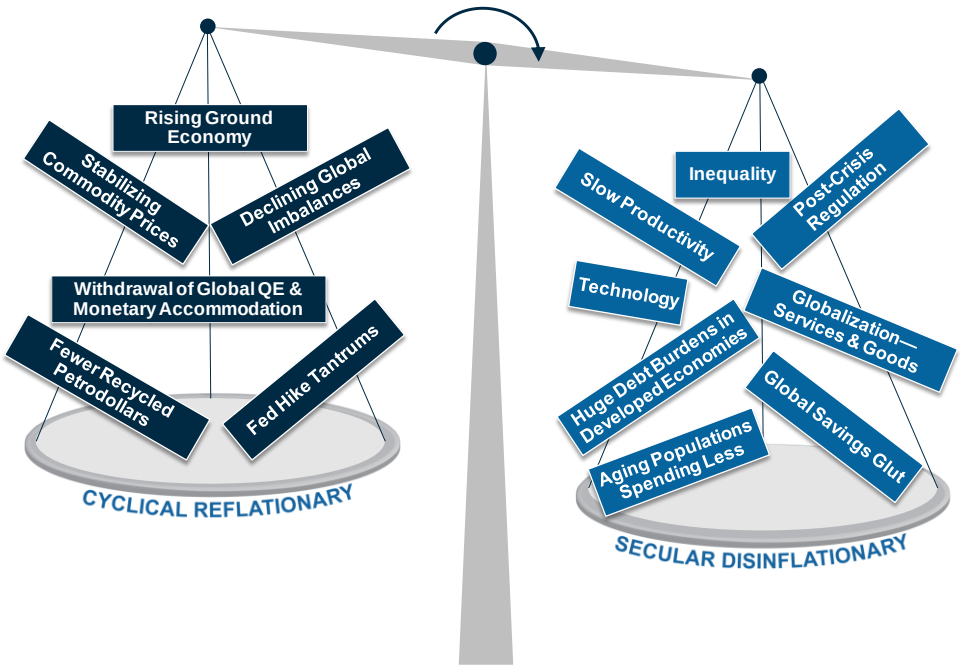
Five Over Five

Major Global Themes Expected to Shape Markets Through 2020

Most financial forecasts tend to have short term horizons—and with good reason—the idea of a five-year outlook covering major themes likely to drive global markets can appear almost recklessly ambitious. Yet the fact remains that many institutional investors have longer time horizons. We have therefore chosen ***five major global macroeconomic themes*** *with clear views on how they are likely to drive markets for the next half decade:*

- *A Multi-Speed World: G10 and EM splinter into medium and low growth camps*
- *Cyclical and Quantitative Reflation Battles Secular Disinflation: But ultimately loses the war*
- *Liquidity and Credit: Scarcity amidst abundance*
- *Commodities: No more crashes? However, divergent supply and demand dynamics ahead*
- *Geopolitics: Lurching slowly towards a multi-polar world*

The Balance of Reflationary and Disinflationary Forces



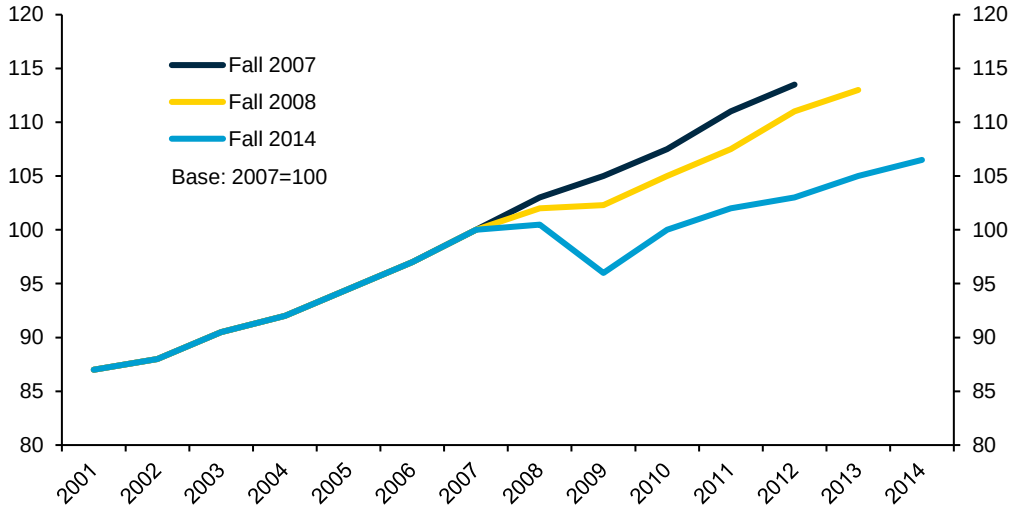
Source: PGIM Fixed Income.

Introduction: A Slow-Healing Global Economy

Let us begin by laying out today's global backdrop. We are now well into the seventh year since the global financial crisis of 2008, and the world economy has, unfortunately, not yet fully recovered. Those who expected a quick return to the nominal growth rates, sharp reflation, and buoyant business cycles of past decades have been disappointed.

Most observers now acknowledge the long shadows cast by the global and Eurozone crises, and see a world beset by slower-than-average recovery in nominal growth driven by the debt overhang in the aftermath of those crises. No one expects a recovery to the robust growth levels of the past decade, since it is clear that at least in the G4, the credit creation that fueled it is unlikely to repeat. Indeed, the low growth of recent years is the subject of much handwringing, and we are in the horns of a debate among eminent economists such as Larry Summers and Ben Bernanke over whether we are in the midst of *secular stagnation* or merely a *global savings glut*. The shift in consensus reflects reality—developed country output has consistently fallen short of projections.

Falling Short: Output Projections Over Time in Developed Markets (%)



Source: IMF. As of October 2014.

Further, the perceived long-term benefits and risks of Quantitative Easing (QE), remain controversial despite its becoming a widely practiced staple of G4 monetary policy. Yet previous concerns about galloping inflation due to QE have now given way to consternation over a global tendency to disinflate or even deflate. Given the combination of these two tendencies of slow real growth and low inflation, it appears that the consensus has come around to our long-held view of low nominal growth and aging populations leading to low rates for a long period of time (see "The Low Ranger" and "Europe, Into the Void"). Both Europe and Japan are still steadfastly implementing QE, and growth and inflation everywhere in the G4 remain well below targets.

Global markets went through three major upheavals last year: European yields dropped dramatically, the U.S. Dollar had a massive rally and energy prices plummeted. All three moves have come with significant repercussions and increased risks. The yields on nearly a quarter of the European government bond market, and parts of the JGB market, are now negative, sending investors on a global hunt for incremental yield. The Dollar's rally and oil's price drop have left certain industries and countries with poorer balance sheets, causing previous quiescent default rates to rise. Meanwhile the Fed is expected to raise rates later this year, causing consternation in some quarters. After almost a decade of strong growth

and credit improvements, most emerging market economies have also had a difficult few years and many remain pinned to the ropes by slow exports, sluggish capital flows, weakening currencies, falling commodities, and a host of idiosyncratic self-inflicted wounds.

It is against this challenging global backdrop that we expect to see five major macro drivers shaping the financial markets until 2020. Following are the driving themes and their investment implications for the major asset classes. We have concentrated most of our remarks on interest rates, credit, and currencies.

1) A Multi-Speed World: G10 and EM splinter into medium and low growth camps

A Slowly Growing Global Economy Can Carry On…

For the past several years global growth has labored to recover from structural headwinds, most notably the Reinhart-Rogoff style debt overhang from the global crisis and the more recent European crisis. Barring any new disasters (more on this later) we have good reason to expect the global expansion to continue for the next half decade. However, such growth may continue to disappoint relative to past expectations—for the world is no longer a naturally buoyant place. As Larry Summers put it last year, "simultaneous achievement of adequate growth, capacity utilization and financial stability appears increasingly difficult." Over the past decade, it has become apparent that potential GDP in the developed world is significantly lower than previously thought. *In several difficult individual cases, in both DM and EM, long term policies—especially structural reform—remain key to sustainable growth, but good policy may not be forthcoming (or limited).* Instead, in many countries, political paralysis and stretched fiscal balance sheets have led to overreliance on monetary policy.

Slow and Asynchronous: Annual GDP Growth (%)

	2012 Actual	2013 Actual	2014 Estimate	2015-Forecast		Potential GDP Growth Rate
				Bloomberg Survey	PGIM Fixed Income	
Global	3.4	3.4	3.4	3.4	3.2	--
U.S.	2.3	2.2	2.4	2.5	2.6	2.3
Euro Area	-0.7	-0.5	0.9	1.5	1.4	1.0
China	7.7	7.7	7.4	7.0	6.2	5.5
Japan	1.8	1.6	0.0	0.9	0.9	0.5
Memorandum Items:						
Developed Markets	1.2	1.4	1.8	--	2.1	--
Emerging Markets	5.1	5.0	4.6	--	4.0	--

As of May 2015. Source: PGIM Fixed Income, Bloomberg. Survey forecast for global growth based on average forecast from several broker dealers and PGIM Fixed Income. The forecasts presented herein are for informational purposes. There can be no assurance that these forecasts will be achieved.

Our projections for GDP growth in the major economies along with estimated potential growth are shown above along with recently recorded levels. We see the U.S. growing steadily between 2% and 3%, with carefully calibrated monetary policy

keeping it in that range. We also see a gradual recovery in Europe, albeit somewhat sluggish considering the huge slack in Peripheral capacity, but one whose timing and extent is still very uncertain and should keep the ECB accommodative for a good part of our forecast period. In China where they are just starting to manage their slow down (and assuming the right policy choices are made), we may see China's GDP slowing to around 5-6% over the next several years.

A perverse benefit of post-crisis reforms, which throw sand into the gears of global credit, is ironically, a prolonged recovery. The mix of moderate policy, regulatory brakes, and a dash of animal spirits should keep this expansion going for much longer than has been the post WW-II norm. Thus credit and leverage could eventually build up, but at least in Europe and the U.S., only gradually, not exuberantly as they did in the mid-2000s. *In Asia however, risks of a credit bubble are higher.*

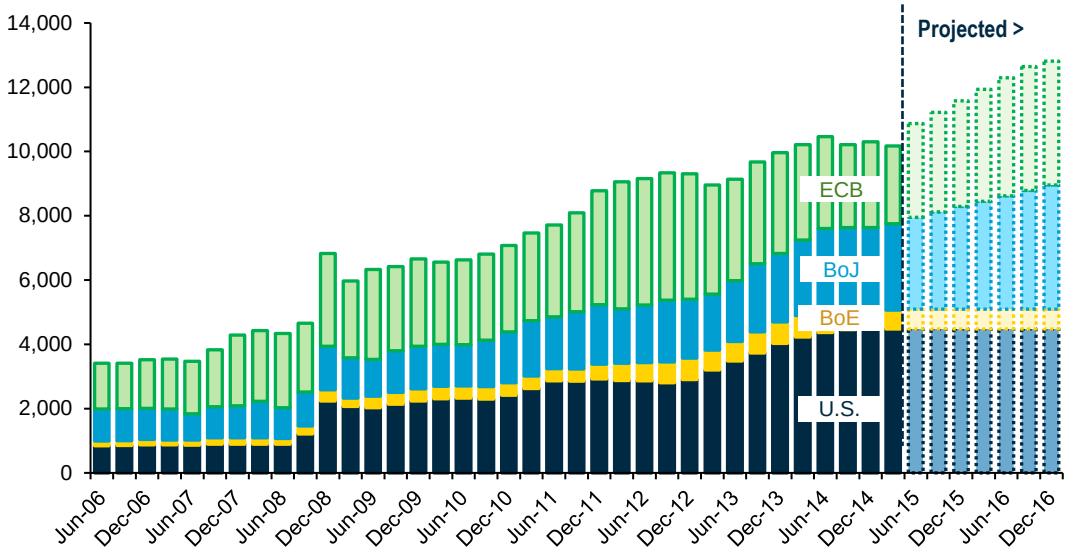
…with Asynchronous Growth, but Divergence Dampened by Negative Feedback Loops

Our potential growth rate estimates also highlight the *multi-speed world we live in*. In line with recent history, the industrialized economies will likely split into four camps, in decreasing order of potential growth—first the group which includes Australia, New Zealand and Canada, then the U.S. and the UK, thirdly Europe, and with Japan bringing up the rear. China, now the world's No. 2 economy, is, although slowing, in a league of its own, with official GDP near 7% today and unofficial estimates ranging around 5%. Apart from differences in potential growth rates, the major economies' economic cycles have also been, and will remain, out of sync, with the commodity economies having emerged relatively unscathed from the crisis, U.S. and UK being first and second to recover among the G4, Japan being at or above potential, and Europe still lagging behind by several years.

In fact, *both the long-term and cyclical components of asynchrony are likely to remain* with us for several years. In the long run, this asynchrony is a healthy phenomenon, allowing the global economy to avoid globally coordinated booms and busts. That said, as some data in the first half of 2015 suggest, some degree of convergence is likely to return and pressure global interest rates as Europe recovers cyclically. We will explore this phenomenon further in the next section.

However, several stabilizing negative feedback loops—both market and policy-related—may also dampen tendencies towards inter-country economic divergence, notably countercyclical monetary policy and market moves in FX, interest rates, and commodities. For example, the ECB has embarked on QE in response to deflationary pressures in Europe while the U.S. is healthy and the Fed is poised to raise rates. These inflation and policy differentials have recently pulled down European rates and weakened the Euro, which boost the European economy. Similarly, weak G3 growth partially contributed to lower oil prices with a resulting stimulant effect on these economies.

Central Bank Assets to Continue to Rise Because of Quantitative Easing ($ Billions)



As of March 31, 2015. Source: Bloomberg. Source of projections. PGIM Fixed Income. The projections presented herein have been generated by PGIM Fixed Income for informational purposes as of the date of this presentation. They are based on proprietary models and there can be no assurance that the projections will be achieved.

…But with the Potential for Bumps Along the Way

While slow but steady growth is our base case, it carries some significant risks. *Will the U.S., in its seventh year of expansion, go into recession over the next five years?* The longest expansion on record was 10 years—so although we don't expect a recession near term, it is clearly a risk. Is QE here to stay, or was it a multi-year, multi-pronged post financial crisis one-off response? The answer to this question depends on whether one expects a U.S. recession and how many rate hikes away we are from a "normal" policy (see the next section). *Europe's long-term recovery is essential to the sustainability of Italy's and Spain's public debt. Considerable long-term risk remains in this area, as it does in Japan*, where the question also remains as to whether QE can generate sufficient inflation, and whether there will be sufficient fiscal adjustment so that debt sustainability can be restored. And further, whether QE, combined with structural reform, will have a sustained impact on growth. If not, QE could unravel into an exchange rate depreciation/inflation spiral. *More broadly, G4 QE and QE withdrawals pose new challenges for markets and policy makers. China needs to manage a soft landing*—and the alternative would also have major repercussions for markets. We will also discuss the threats from *geopolitics* and the *episodic drying up of liquidity*.

Emerging markets are an even more diverse group than developed economies, and it is difficult to generalize about their prospects. As we will discuss in the second and fourth sections of this paper, they have been hit in recent years by a combination of external and internal shocks. Yet they have favorable debt and demographic dynamics. In our base scenario of a gradual global recovery, as a group, *emerging countries are probably set to recover from a multi-year slump and outpace their developed counterparts significantly, but with important country-specific differences*. In particular, countries in EM are characterized by a wide dispersion in their internal and external balances. Their policy responses vary widely, falling on a spectrum ranging from reform to stagnation to instability.

Investment Implications:

- *First, risk assets such as equities and high yield bonds are likely to produce modestly positive returns in the absence of a recession, but unlikely to repeat their stellar performance of the previous five years.* In particular, this suggests stock returns closer to mid-single digits than to the mid-teens or higher. Credit spreads, while tighter than post crisis levels, are far from historical lows. Therefore credit spreads appear especially attractive given the low level of rates.

- Second, we see *no immediate catalysts for another global crisis or crash*—though they could develop in the coming years. We do see leverage increasing in certain developed and emerging corporate credits (especially in Asia), a run up in specific stock markets and sectors, such as in China or Biotech, and bubbles in specific sectors of the global real estate market—but none of these appear to be severe enough or large enough to be of concern as yet. Rather than ruling out a crash, one could say that *if we have one, it is unlikely to be solely from an asset bubble, leverage, or credit like 2000 or 2008, but rather from developments since then or in the future.*

- Third, crash or no crash, *we expect some volatile years ahead*. The reasons include over-reliance on monetary policy versus fiscal and structural reform, slow nominal and real growth, low global yields and elevated equity valuations, central banks' limited flexibility due to low policy rates and QE, low transactional liquidity, and geopolitical risks engendered by a multi-polar world.

- Last, in emerging markets, *prices are discounting enough pessimism to make us like EM hard currency bonds and to be selectively optimistic on several of the local bond markets.* Still, this overall sanguine outlook masks many country-specific differences, where the severity of each country's challenge combined with the robustness of its policy response will determine its idiosyncratic outcome. We will discuss EM further in the commodities section.

2) Cyclical and Quantitative Reflation Battles Secular Disinflation: But ultimately loses the war

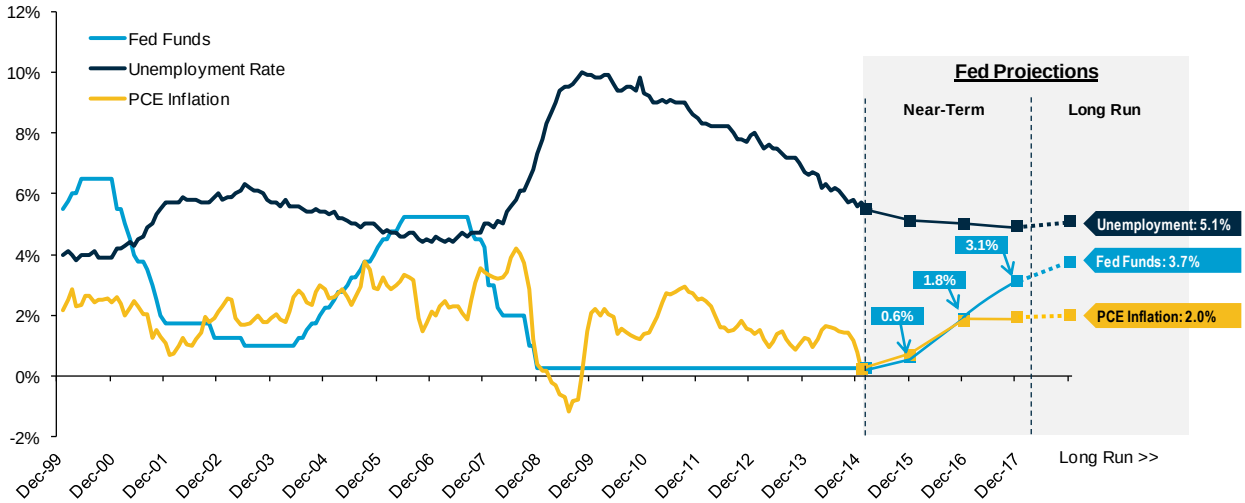
Low for How Long?

Perhaps the most interesting and engaging drama in the financial markets over the coming half decade will be on the battleground of global "reflation," and particularly over the question of how rapidly and how far global interest rates can "go back to normal" after a prolonged period of abnormally low inflation and abnormally accommodative policy. These battles will be fought between cyclical economic forces and long term secular disinflationary ones.

The global economic expansion should continue over the next five years. The U.S., already in a seven-year long expansion today, is on pace to move towards and presumably reach full employment sometime in the next one to three years. While inflation in the EU and Japan are at present well below targets, a prolonged period of accommodation, both monetary and quantitative, will presumably work its magic, and by the later part of our projection period, both their respective central banks should have had more than adequate time to demonstrate the success or inadequacy, as the case may be, of their quantitative reflationary policies. If success it is, then presumably, in the EU, much like the U.S. of today, the ECB would be tapering and getting ready to hike. In Japan similarly, QQE would hopefully no longer be necessary. China, which needs to stimulate substantially in both fiscal and monetary arenas in 2015 to offset its housing

weakness and the reining in of its local governments and state owned enterprises (SOEs), would be expected to be much further along and may also have begun to normalize policy. This global policy normalization ought, in the coming years, to be lifting policy rate expectations and raising inflation expectations in the G4, exemplified by the Fed's projections for unemployment and inflation, along with the so-called "dot plot."

Too Hawkish? Fed Funds, Unemployment Rate, and Core PCE Inflation[1]



As of April 30, 2015. Source: Bloomberg, Federal Reserve. [1] PCE inflation represents the year-over-year percent change in the Personal Consumption Expenditures Deflator. The forecasts presented herein are for informational purposes. There can be no assurance that these forecasts will be achieved. Please see Notice for additional disclosures.

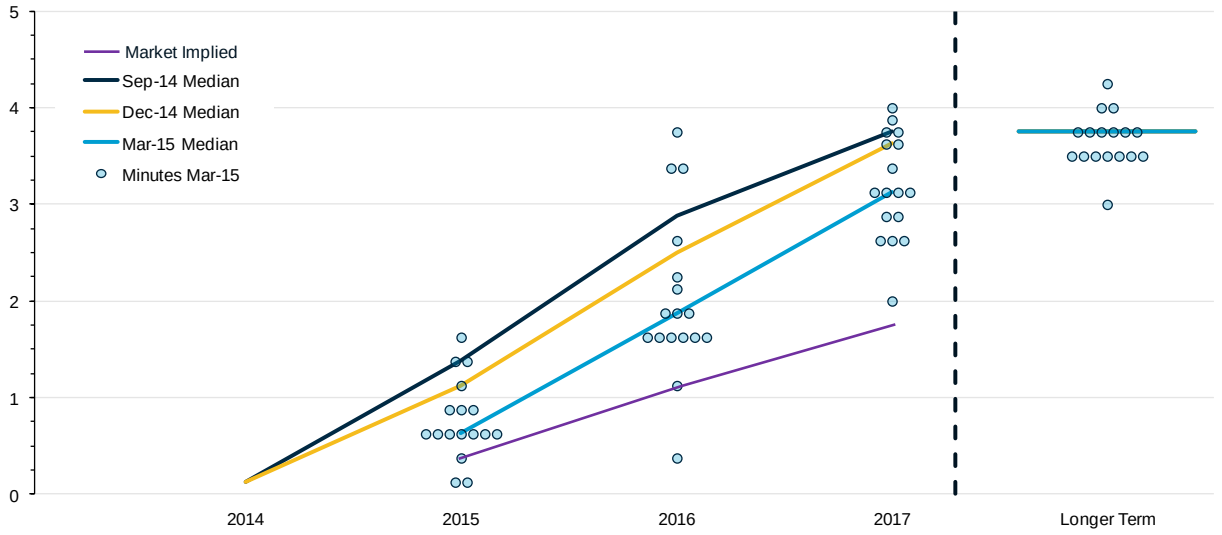
A second, related cyclical phenomenon is quantitative—*the slowdown in EM reserve accumulation and QE*. The drop in commodity prices has been reducing petrodollar surpluses. The pace of reserve accumulation in emerging economies, including China, will be slow or may reverse in some cases. Similarly, five years from now, QE should largely be on hold, in taper, or being unwound in most of the developed world.

Both these factors should, on the margin, put upward pressure on G4 bond yields. *In sum, within our five-year horizon, the rest of the world may begin to experience withdrawal pains from easy policy much like the U.S. has already been going through since 2013.* So are we setting up for the mother of all taper tantrums—to a return to the significantly higher rates of yesteryear as forecast by the Fed "dot plot?"

Fixed Income Bears Likely Foiled Again

In a word, ***no***, because fixed income bears are likely to be foiled once again by the same factors that will hold back the central banks—namely modest G4 growth and low inflation. While the accelerating cyclical reflationary forces we have outlined above will undoubtedly drive episodic sell-offs and increase interest-rate volatility, they will be held back by *the persistent invisible drag of long-term secular factors* that are here to stay, limiting rates and inflation for the next decade or more. This is reflected by market-implied policy rates in the U.S. that are well below the Fed dots, even as those dots have been coming down. But in our view, even market-implied rates are too high. We think terminal policy rates will be between 1.5% and 2.5%.

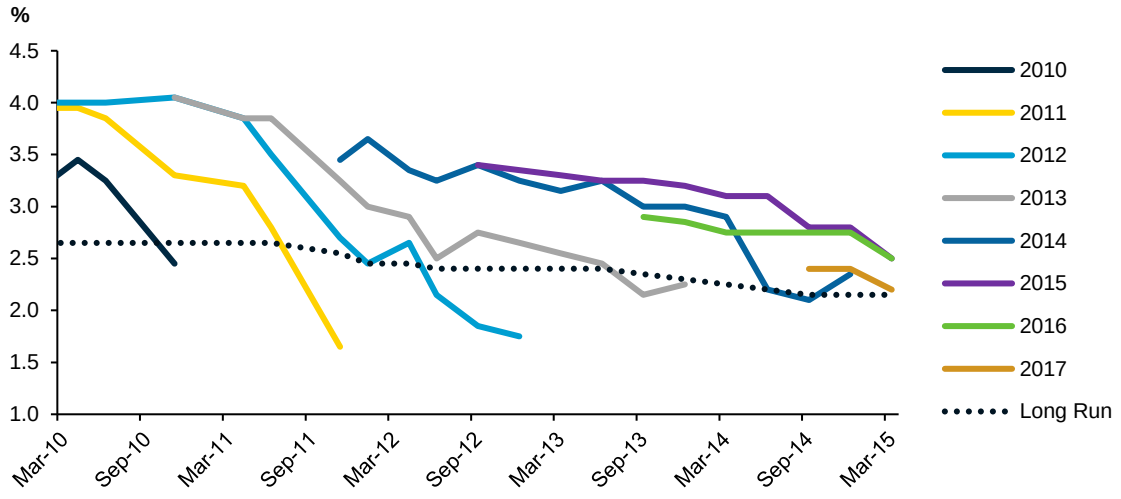
Adjusting to Economic Realities: The Federal Reserve "Dot Plot" (%)



As of March 31, 2015. Source: Bloomberg.

Why so low? Powerful long-term disinflationary factors include *global aging*, the *debt overhang in developed countries*, *globalization of labor* especially in services, *technology*, *inequality and slow productivity*, and the lingering effects of *post-crisis regulation*. The FOMC has been consistently too optimistic on U.S. growth rates as well— we believe many of the same secular forces are to blame there. Let us summarize these global forces.

Persistently too Optimistic: FOMC Real GDP Projections for the U.S.



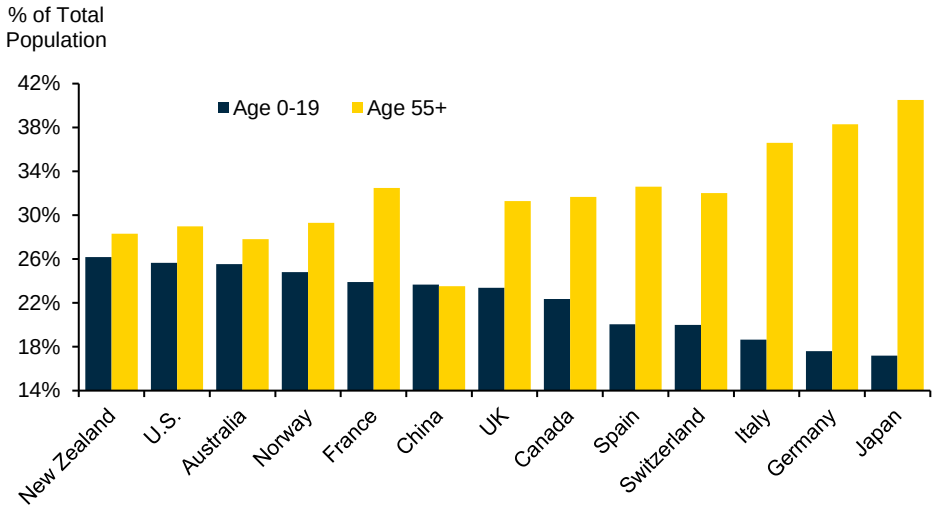
As of March 31, 2015. Source: FOMC.

First, *demographics*—particularly the aging of populations, is gathering pace in most of the developed world and in some emerging countries. Although its inflationary effects are debatable, the evidence so far appears to be that they are disinflationary through subdued demand, based on effects now seen in Japan, the EU, and elsewhere.

Second, poor young populations in the developing world exert downward price pressure through *globalization*, since they are a source of cheap supply. Behind the current wave of a billion Chinese workers, there are 1.2 billion more Indians, not to mention the rest of the emerging countries—most with young demographics—all waiting their turn to export deflation.

Globalization has also shifted focus from manufacturing to tradable services, and from the flow of products to that of information, intellectual property sharing (both legally and otherwise), and replication.

A Rapidly Aging World: Developed Market Population Prospects (Average: 2015-2024)



As of March 2015. Source: United Nations and Haver Analytics.

Third, pockets of *high indebtedness (private and public)* in the developed economies have run up to the point where even if they are sustainable long term—a claim one may question in Europe and Japan—they are unlikely to expand much further, so we won't get another credit binge of the sort that supported growth in the 2000s. Instead, the debt is likely to force fiscal and private spending restraint that will dampen growth.

Fourth, *technology*—whether its role is in introducing cheap driverless cars, in reducing the cost of reading x-rays by shipping them across the world, or in piping education through MOOCs (Massively Open Online Courses), is another significant, if hard to measure disinflationary force.

Fifth, *inequality* in the ownership of capital and in wages boosts savings in favor of consumption, while the slowing of productivity in recent decades, unless reversed, will remain a drag on nominal growth and likely, nominal rates as well. A risk is that discord due to rising inequality could climb and either further paralyze the political system, or else lead to radical and unpredictable changes.

Finally, the sand thrown in the gears of lending, in the form of *U.S. and EU regulations*—Dodd Frank, Basel III, and other frameworks—have permanently tightened requirements on bank capital, risk weightings, and liquidity in financial intermediaries. These regulations are exchanging a reduction in tail risk for greater friction in lending and market making—effectively a check on credit growth and inflation as well.

To sum up, a reflating global economic cycle seems likely to be held in check by secular disinflationary forces, creating a long-lasting but volatile and uneasy low rate equilibrium.

Investment Implications:

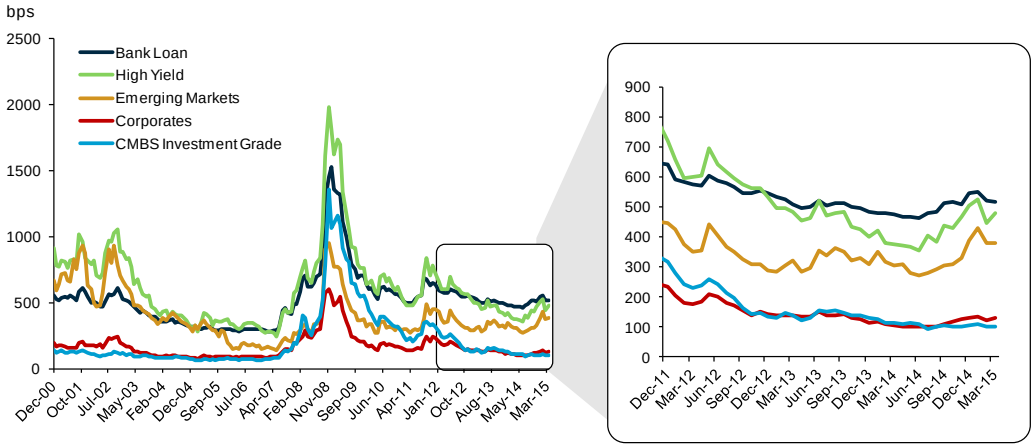
- In our base case, a crash in bond markets (credit or rates) is unlikely in the next few years, and inflation is likely to remain low, so most institutional investors need to make incremental rather than huge adjustments to asset allocations. Although returns from government rates are likely to be lackluster, *completely shunning duration—both strategically and for the long haul—is unnecessary and inappropriate, especially in currencies with historically steep yield curves.*

- As mentioned in section 1, the credit cycle and the reach for yield likely has several more years to run. *Credit looks to be an attractive alternative to rates*. Slow and asynchronous growth will prolong the recovery and minimize the likelihood of a credit bust, while a more tightly regulated lending environment and higher starting debt levels will hold back a mid-2000s like credit binge. *Selected financial, structured finance, non-energy high yield, and emerging markets spreads look quite attractive.*

- However, in the industrial corporate sector, caution is required, as a low for long rates environment and steady but slow, unexciting growth is likely to drive continued leveraging and M&A activity. A bubble may also be building in certain geographies such as Asia. *Investors need to choose credits carefully*, as there is an expansive mix of good and bad issuance, and we are no longer early in the credit cycle. Bottom up selection of countries, sectors, and issuers is essential.

- For those concerned with the impact of a rates tantrum bruising emerging markets, we think *EM hard currency debt will ultimately emerge from this difficult period with its reputation—for delivering positive but volatile returns—intact,* but with a lot of idiosyncratic variation. The end of QE and the normalization of the global rates will bring an end to competitive currency devaluations in emerging markets. Commodities, neither a deflationary nor an inflationary force any more, are likely to follow rather than drive global demand vectors (See section 4).

Attractive vs. Rates: Strong Fundamental and Technical Backdrop Likely to Spur Further Spread Tightening



Spreads (bps)	
Current	Pre Crisis Lows (5/31/07)
519	286
482	267
382	143
130	78
102	90

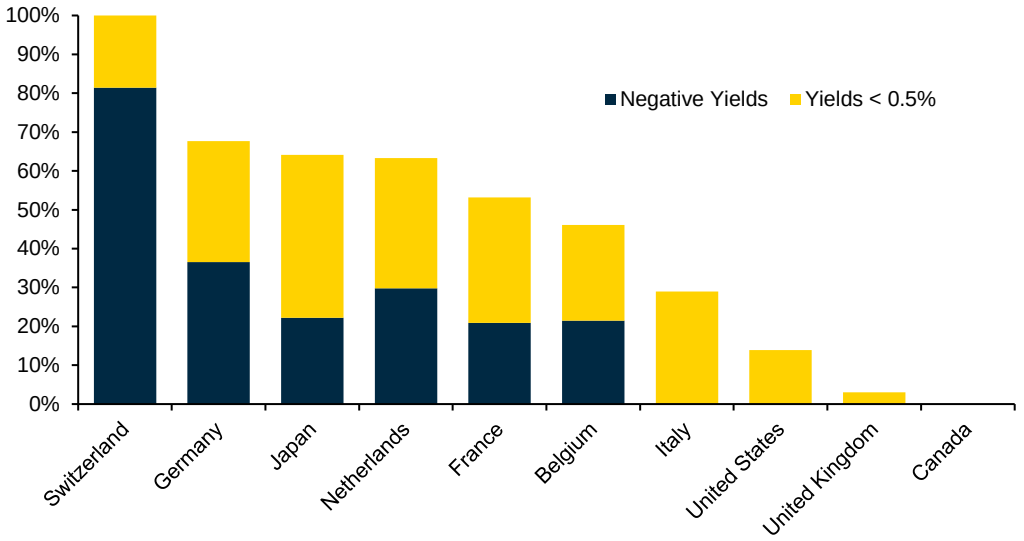
As of March 31, 2015. Source: Corporates, Emerging Markets, CMBS from Barclays. High Yield from BofA Merrill. Bank Loans from CSFB. Loan data on a week lag.

- *However, for European and Japanese investors, a significant fixed income reallocation may be appropriate for some period.* Very low or negative yields in these areas' fixed income markets will likely persist for years. So *European and Japanese* investors need to look elsewhere for both the returns and the recession insurance traditionally provided by

their government bonds. We suggest *all four of the traditional channels within fixed income for those opportunities—up the duration spectrum, down the credit spectrum, along the currency spectrum, and across the structured finance spectrum*. Pending signs of convergence, this reach for yield will continue to flatten the steeper yield curves within the G10, keep the Euro and Yen weak, and keep exerting a gravitational pull on U.S. Yields.

- *We would advise investors to watch for the key risk to our base case—that of a severe economic downturn in the U.S. and/or EU, generated either endogenously or as the result of an external shock.*

A High Percentage of Bonds with Low or Negative G10 Yields in the World Government Bond Index



As of May 20, 2015. Source: Citigroup and PGIM Fixed Income.

3) Liquidity and Credit: Scarcity Amidst Abundance

As the QE-driven monetary policy in the U.S. has spread to the rest of the G4, and proceeded apace with financial regulation designed to curb the banking excesses of the mid-2000s, two remarkable things have happened to credit and liquidity. The first is that since central-bank-provided liquidity has not resulted in banks becoming eager lenders, large corporate entities with access to capital markets have tended to benefit versus households, small and medium sized entities, and bank-dependent corporate credits. In a post-crisis reaction to the excesses in the shadow banking and asset-backed markets of the mid-2000s, regulators have clamped down on banks and prompted them to withdraw from certain key market segments, such as structured finance and from SME lending in Europe. Basel III rules will exacerbate this credit scarcity in Europe. Eventually this withdrawal by banks will be substituted by capital markets, which is occurring in part in the leveraged loan, high yield, CLO, CMBS, and ABS markets, although nowhere near the extent of the mid-2000s.

This overall uneven credit environment might be expected to create bubbles—but despite widespread concerns, *we cannot find large asset bubbles*. In particular, given our views on interest rates, we disagree with the notion that has been advanced by some, that the entire bond market—either rates or credit—is in a huge bubble. For example, some may call low or negative real and nominal government yields in Europe and Japan a bubble. We prefer to call them the largely intentional effects of financial repression and QE. *However, whatever we call the effects of QE, it is undeniable that it has*

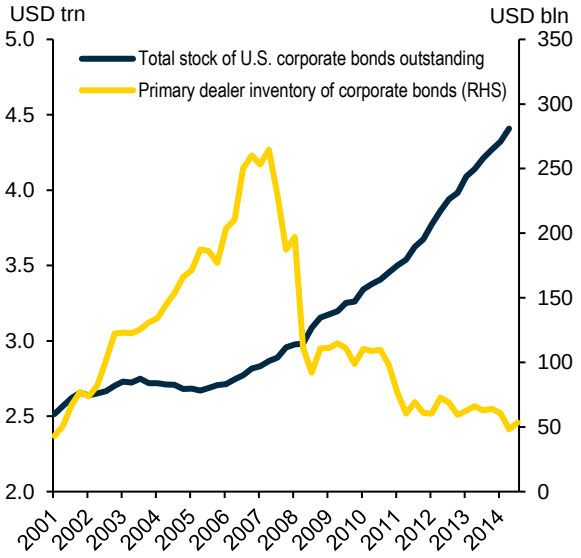
left both policy makers and markets in uncharted territory and with an unmapped exit strategy. The involvement of a giant player in shaping the market does leave it susceptible both to increased volatility and to the risk of unintended consequences.

Others point to the credit issues in the high yield energy industry or EM oil producers as the pricking of a bubble, but it sounds like another day in the life of high yield and EM to us. A big bubble has *not yet had a chance to build* because of the stringent financial regulatory regimes introduced in the U.S. and Europe, because of the slow-speed asynchronous outlook for the global economy, and the fact that the commodity super-cycle has come to an end, as explored in Section 4.

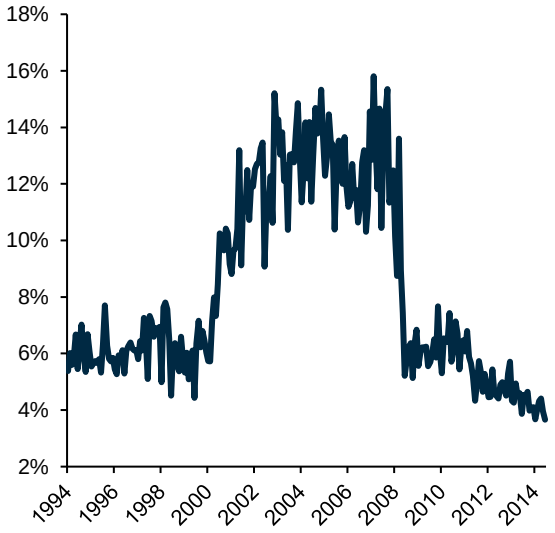
However, *we must continue to watch for bubble creation in new forms*. Most of the potential bubbles we can find are localized by sector, asset class, and geography. There may currently be smaller bubbles in some credit and real estate markets in Asia, in pockets of private equity and technology, in Chinese stocks, and in parts of the Chinese economy related to SOEs and real estate.

The second phenomenon is that, as a result of the capital, risk, and liquidity restrictions on U.S. and EU banks and broker dealers and increased regulatory oversight of the SIFIs (Systemically Important Financial Institutions), transactional liquidity in the secondary debt markets has been dropping. Most banks and brokers have shut down their proprietary trading operations under the Volcker rule. Their corporate balance sheets have shrunk dramatically since the 2008 crisis, although the drop implied by this data is exaggerated by pre-2008 structured credit transactions.

Very Few Corporate Bonds Remain on Broker Dealer Balance Sheets



Falling U.S. Treasury Transacted Monthly Volumes vs. Outstanding Stock*



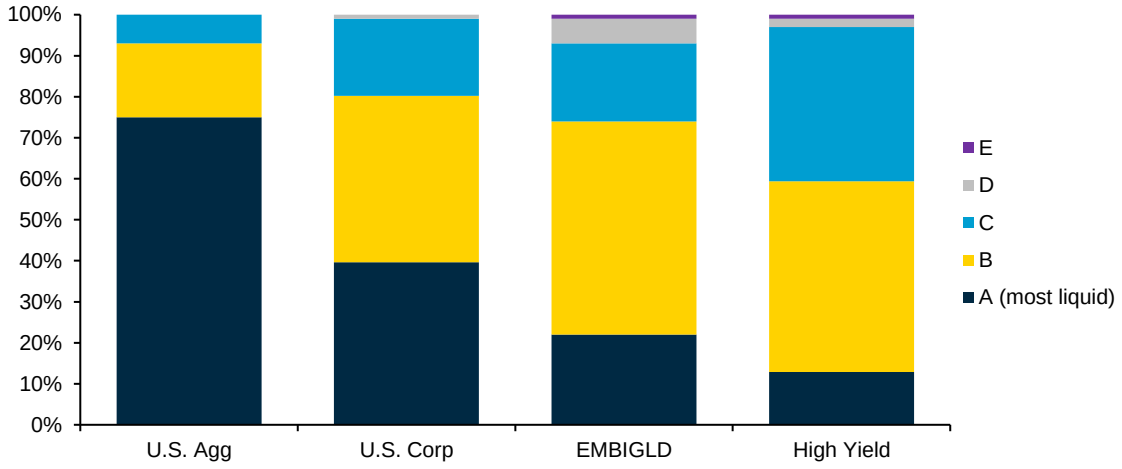
*As of March 31, 2015. Sources for both charts: Haver Analytics. * By primary dealers. Outstanding stock does not include Federal Reserve holdings.*

Even in the most liquid securities, such as U.S. Treasuries, transacted volumes are a shrinking fraction of the stock of outstanding securities. The buying up of liquid securities by large and relatively static market participants, such as the G4 central banks and EM reserve managers, has reduced the liquid float in the market. *The impact on liquidity is unclear since normal bid-offer spreads have not worsened in liquid markets, such as Treasuries.* A liquidity driven market

dislocation may be the catalyst that forces a rethink of market practices and the regulatory framework, since banks and brokers will not be in a position to provide much liquidity in a sell-off.

One can concoct quite a disruptive scenario, for example, where a fundamental change in an outlook or an initial large outflow triggers a cascading exodus from an asset class in retail mutual funds, accompanied by an inability to meet redemptions, a large drop in prices and a (hopefully) temporary loss of price transparency. While investors need to be cognizant of their portfolio liquidity, passive allocations are not the answer, since a large percentage of bond benchmarks may be affected. Considering four major fixed income benchmarks representing a broad market U.S. IG bond index, U.S. IG Corporates, Emerging Market Hard Currency, and U.S. High Yield, with securities classified into five buckets from most liquid (A) to illiquid (E)) using bid-offer spreads, we can see that *even the broad index has some less liquid bonds, while the others have increasing fractions of significantly less liquid securities*.

Liquidity Profile of U.S. Broad Market, Corporate, Emerging Market Bond and High Yield Indexes (%)

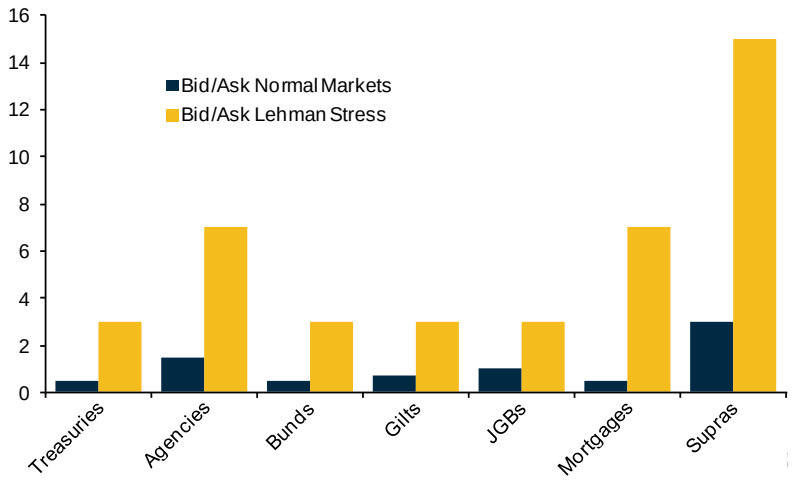


As of May 2015. Source: PGIM Fixed Income.

Further, it is difficult to measure whether investors are adequately compensated for the incremental liquidity risks they may now be taking on. There are limited relevant data and therefore one needs to guess the expected extent and scope of a market disruption, as well as how likely such an event may be. However, the Lehman default and its aftermath do provide one useful scenario for assessing the impact of a loss of market liquidity. *By comparing normal bid-offers with those that prevailed during the Lehman crisis, one can see that even liquid segments of the fixed income market lost a large part of their liquidity* for one to two quarters during that event.

While market participants may fear an all-out liquidity withdrawal like the 2008 crisis, *the higher probability is that of more episodic moderate losses of liquidity, especially in single sectors or asset classes such as high yield*. In the past, dealers may have been better able to provide liquidity during such events (but not in severe events, such as Lehman). This implies higher volatility, but also lower cross-asset correlations during moderate sell-offs, as well as enhanced opportunities for active investors to take advantage of price dislocations created by the absence of a liquidity provision from market makers.

Normal versus Lehman-Crisis-Stress Bid/Ask Spreads for Liquid Securities (Bps)



As of September 30, 2014. Source: Bloomberg and PGIM Fixed Income.

Investment Implications:

- Recent regulation greatly reduces the likelihood of a repeat of the 2008 crisis driven by banking, shadow banking, and ABS in the U.S. or EU. *However, it poses a continuation of the very unequal credit landscape of the past few years, one that is unlikely to stoke either a conventional growth binge or a broad bubble.* Bank disintermediation is expected to leave Europe with bigger and deeper capital markets by 2020.

- Transactional liquidity will increasingly have to come from the "buy side," not the "sell side." Investors and investment managers, especially those with short term liquidity provisions, need to ensure that they have the ability to meet redemption needs in a stress scenario.

- So-called *flash crashes* may be intimations of ongoing vulnerability in the market but so far, the bond market has escaped a major liquidity event. *Still, liquidity may be a significant risk for markets going forward*. *With dealers unable or unwilling to take on risk, even a moderate shock may drain market liquidity very quickly—so the adjustments will likely come through (temporary) price drops. In contrast to the past, the market may experience more moderate episodic losses of liquidity, especially in individual markets, geographies, asset classes, or sectors.*

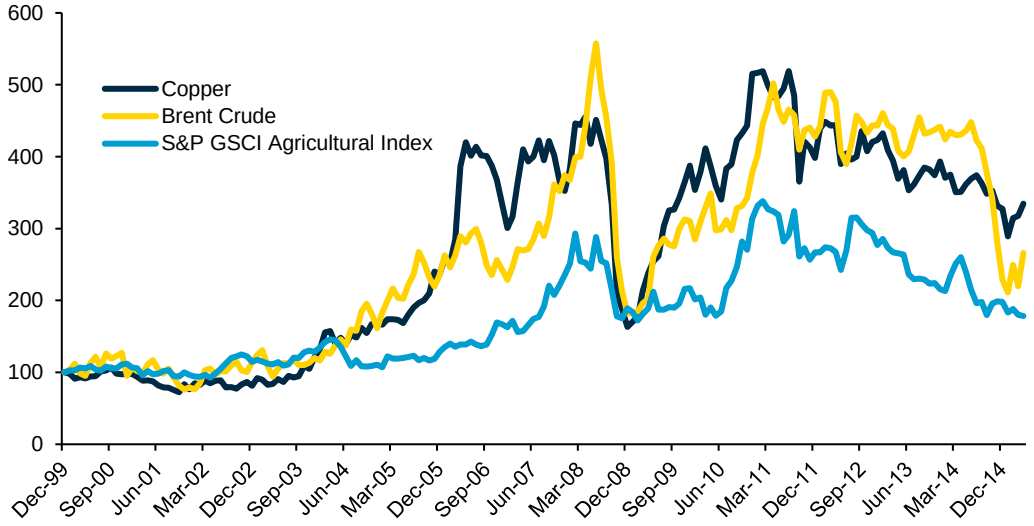
- *Liquidity-driven sell-offs will increasingly provide opportunities to snap up securities at attractive valuations*—this is likely to be an ongoing source of relative value in active management. Credit analysis and bottom up management will enable investors to take advantage of broad liquidity driven episodes, such as the recent EM and HY energy sector sell-offs in 2014-2015.

4) Commodities: No more crashes? However, divergent supply and demand dynamics ahead

The Long Winter of Discontent

Commodities have been living through a long, multi-year slump, and few signs remain of the decade and a half long supercycle characterized by the huge run up in commodity demand and prices that ended about five years ago. With the past year's drop in oil prices, all three major commodity sectors, namely industrial metals, agricultural commodities and energy commodities have now suffered a slump. The reasons for this slump have been debated—the fading of the credit boom of the 2000s, the slow recovery from the global and European crises, and perhaps most importantly, the slowing of China's unprecedented growth and infrastructure building spurt.

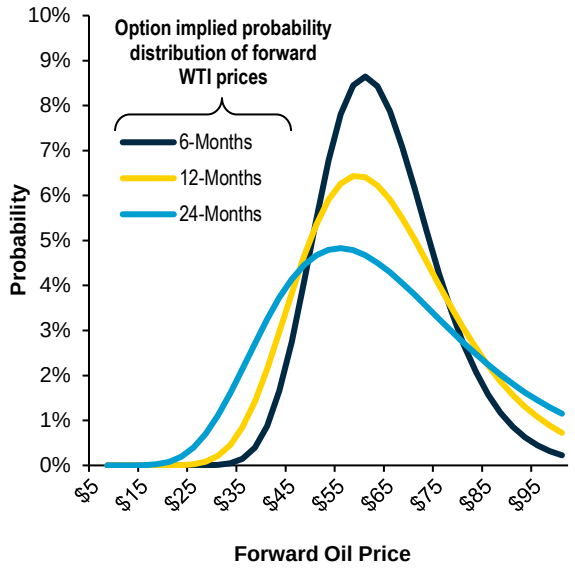
Copper, Oil and Agricultural Commodity Prices: The End of the Super-Cycle (Indexed to 100)



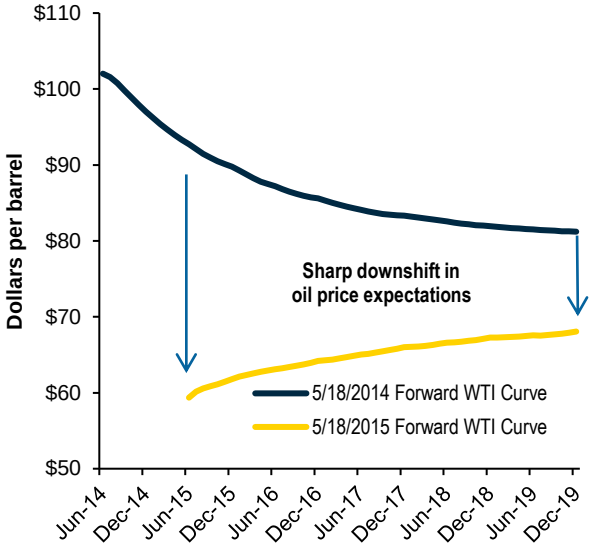
As of April 30, 2015. Source: Bloomberg.

Oil, the last to fall, was triggered by all of the above factors plus two more unique to oil—the "tight oil" (shale) production ramp-up in the U.S., and the apparent OPEC/Saudi decision not to lower production quotas and thereby to squeeze out the higher cost players. *The three groups of commodities all have many common factors driving demand, but relatively commodity specific and idiosyncratic supply dynamics*. And indeed, the price and demand dynamics over the next half decade will be driven by these same two factors.

Considerable Uncertainty in the Forward Price Curve



Changes In The Forward Oil Price Curve: 2014-2015



As of May 2015. Source of left hand chart: Bloomberg and PGIM Fixed Income. Source of right hand chart: New York Mercantile Exchange and Bloomberg.

For a more detailed perspective on PGIM Fixed Income's view on oil see our recent white paper, *Adjusting to a World of Surplus Crude—From Peak Oil to Crude Abundance in Just Over a Decade.*

A New Order

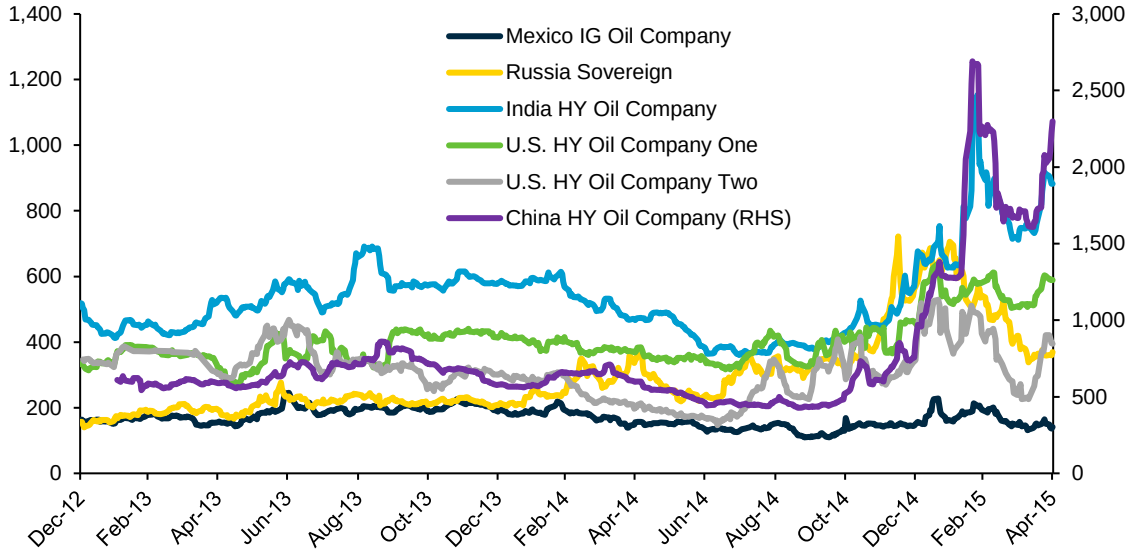
We would suggest that there are "no more shoes to drop," given the steep falls in most commodities. *In fact, after becoming used to rapidly rising and then plummeting commodity prices, the real surprise for investors going forward may come from much more range bound prices for the commodity complex.* Further, it seems likely that commodities will *follow* global demand rather than lead global markets over our horizon, always excepting a serious supply disruption. In particular, going forward, there are unlikely to be crashes and declines of the same order as has occurred since 2011. In fact, while it is hard to say where each commodity may bottom out, the global demand backdrop in Section 1 is mildly supportive of commodity prices over our horizon, while leaving plenty of room for volatility in both directions for individual commodities such as oil, copper, and iron ore. If commodity price drops are to be less severe, their deflationary effects will be one less thing to worry about.

Investment Implications:

- *While commodity markets may have appeared to many as a single story over the past few years, their idiosyncratic features going forward will separate their fortunes into those of individual commodities and issuers.* For example, there are already signs that credit and equities in some oil names may offer value, while others are clearly unviable. This is indicated by the positive returns but large dispersion of those returns in the oil sectors of the U.S. stock and high yield market. Similarly, among industrial metals, copper has a much better supply demand dynamic going forward compared to iron ore, where the supply overhang will last for many years. After the oil price drop, as discussed in Section 2, petro-dollar recycling (money spent on energy funneled into G4 government bonds by

petrodollar reserve funds) has been, and will be, a largely absent major factor—on the margin exerting upward pressure on G4 rates.

Oil Producers: Divergent Outcomes Reflect Fundamental Strength (bps)



As of April 30, 2015. Source: Bloomberg.

- *The much lower oil futures curve and the wider volatility band around it are typical of commodities today— more realistic valuations and a wide range of possible future returns*. Against this backdrop, countries and corporate credits dependent on commodities have been painted with too broad a brush. As the price charts indicate, while there was initially a highly correlated spread widening among these names, some have recovered sharply after commodities bottomed and rebased, and it became apparent which ones had viable businesses and strong enough balance sheets to survive. Thus a Mexican quasi-sovereign has almost recovered and Russia has rallied strongly, but is only part way back, whereas other oil producing names have remained at very high and volatile spread levels with elevated default risk.

- Among emerging markets, the large drop in oil has hurt emerging exporter countries, and some, such as Venezuela, carry heightened default risk. Many of these are in Latin America and have suffered a significant terms of trade shock. However, as a group they are in a much better position than during previous commodity sell-offs. In many cases their exposures are spread out among different kinds of commodities, and the impact of further price drops on their current accounts will hurt, but should be manageable in most cases. *Stronger balance sheets and higher reserves should also help most emerging countries avoid wholesale distress/default of the kind suffered during previous commodity declines in the 1980s and late 1990s.* In fact, with some specific exceptions, among EM commodity exporters, whose bonds cheapened due to uncertainty and rising risk premia, most should deliver solid returns going forward under the base scenario predicted by oil futures and other commodity prices.

Emerging Market Trade Sensitivities and Commodity Exposure by Country

Emerging Country	Trade: % Share of Trade With			Commodity Exports (% of Total Exports)[1]	Commodities exports by type			Impact of a permanent 10% decline in commodity prices
	U.S.	Europe	China		Metals	Agriculture	Energy	CA balance (% of GDP)
Latam								
Brazil	10.9	19.4	17.8	58.5	20.4	27.5	10.6	-0.3
Chile	10.9	17.5	22.7	65.6	59.1	6.5	0.0	-2.0
Colombia	36.2	14.9	5.5	85.8	10.0	10.8	65.0	-1.1
Mexico	77.6	5.9	1.6	18.6	1.3	3.0	14.3	-0.2
Peru	14.7	17.3	16.8	89.4	62.3	16.3	10.9	-1.1
Venezuela	48.0	5.0	12.7	98.0	1.8	0.1	96.1	-3.0
EMEA								
Russia	2.3	45.0	6.4	74.4	7.4	1.3	65.7	-1.7
Turkey	6.0	37.0	9.0	-32.5	-4.5	-2.6	-25.4	0.6
Hungary	1.3	71.4	7.4	-25.2[2]	-9.1	-1.0	-11.0	0.6
Poland	1.3	70.4	5.4	-28.6[2]	-10.1	-1.9	-13.1	0.3
South Africa	8.3	21.4	11.8	65.3	50.6	3.8	10.9	-0.4
Asia								
Korea	5.2	6.0	9.0	-45.0	-5.4	-4.1	-35.5	0.6
Malaysia	8.7	8.9	12.6	41.0	0.0	17.3	23.7	-1.4
Indonesia	7.8	9.5	11.4	60.7	9.7	17.8	33.2	-0.7
Thailand	5.9	9.2	17.0	-34.7	-11.8	-3.8	-19.1	0.5

Source: JPM EM Outlook and Strategy as of December 31, 2014. [1]Negative indicates net commodity importer. [2]Number includes other commodities.

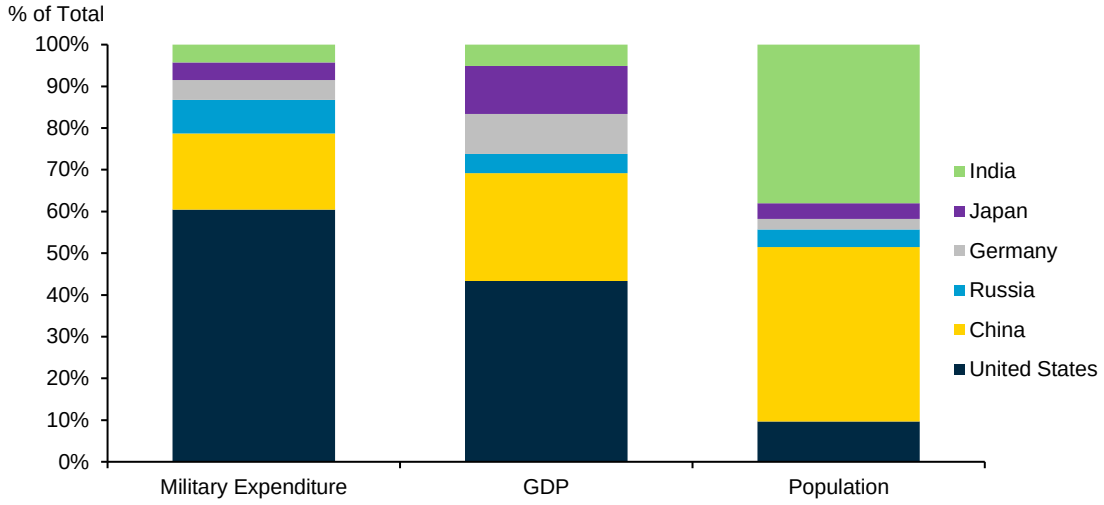
- The end of the broad-based commodity sell-off is also likely to be somewhat positive long term for EM currencies and arrest their decline, but *the picture for currencies is mixed because of the overall likely strength of the U.S. Dollar with the Fed hiking and the role of cheaper EM currencies as a safety valve for terms of trade deterioration and policy inaction*. However, the challenge for high yielding emerging local markets such as Brazil, Turkey, and India is primarily political, as voters have to adjust their expectations and their political leaders have to deliver unpopular policy, which they are not used to doing. This will lead to political turmoil and market volatility in the coming years, highlighting the *criticality of individual country analysis and asset selection.*

5) Geopolitics: Lurching slowly towards a multi-polar world

A Less Unipolar Framework

Following the fall of Communism in the late 1980s, there followed a brief interlude during which the U.S. ruled as the world's sole superpower, and Francis Fukuyama famously and somewhat prematurely declared the "End of History." The euphoria was not to last and soon devolved into a series of regional conflagrations and mini-tussles for geo-strategic influence. The U.S. continues to bear a military burden for protecting much of the world well out of proportion to its GDP. In recent years, the U.S. has been more cognizant of its limits and constraints in asserting its influence in the *world, which has been drifting slowly towards a less "unipolar" framework* in which Europe gradually takes on more responsibility, albeit hugely under-spending relative to its GDP. China is slowly beginning to assert influence more commensurate with its GDP and population, while other powers such as India and Brazil have not yet come into their own. Many of the ongoing geopolitical conflagrations in the world can be understood in this framework.

Out of Whack: Military Expenditure vs. GDP and Population of Major Countries



Source of "Military Expenditure": World Bank Development Indicators as of YE 2013; "GDP": IMF as of April 2015; "Population": UN as of April 2015.

This is an ongoing transition but it is unlikely to be a quick one. The world will continue to experience a re-shaping of old alliances and the creation of new alliances as problems become too complicated and costly to be resolved by one global power alone. Focus on domestic politics and regional alliances will work against the tendency toward a multi-polar world. For the U.S., its recent missteps in the Middle East, the distractions of multiple conflict zones with some more important than others, domestic cost constraints, and the lack of diplomatic consensus at the international level, *will cause the country to try to find regional solutions to regional problems.* Examples include an alliance with Asian countries to address a rising China, re-configuring Middle East alliances, and NATO's bigger focus on its Eastern flank.

This means the U.S. will likely adopt a more multi-lateral approach, with shared cost and responsibility to address increasingly challenging international developments. Still, it is unlikely that there will be much devolution of the key and unique role the U.S. plays because the rest of the world is simply not ready. Luckily, the list of threats that needs to be addressed is mercifully short and the threats to markets are muted; but the list of potential threats is serious and somewhat larger. *Any of these, as well as other unanticipated threats, could significantly roil markets in the coming five years and test the global political leadership.*

Ongoing and Potential Conflicts—2015

Potential Threats of High Importance	Ongoing Threats
• Major Cyberattack • Major Terrorist Attack • North Korean Tensions • South China Sea Conflict • Iranian Nuclear Uncertainty	• Conflict in Eastern Ukraine • Sectarian Violence and Civil War in Iraq • Syrian Civil War

As of May 2015. Source: Council on Foreign Relations, PGIM Fixed Income.

Europe Faces Centrifugal Forces

For Europe, as in the past, forging a common identity is going to be the main challenge for the next five years. With new members have come new challenges that need to be addressed within new political, diplomatic, and military frameworks. Apart from the obvious risks of Greece, there are other centrifugal forces at work, as some old members (such as UK) may question their relevance in the new institutional structures, while aspiring new members (e.g. some Southern European countries) may question the benefits of joining a union that finds it hard to set its own house in order. Anti -EU parties, while firmly in the minority, command significant popular mind-share and media air time, and will continue to challenge the status quo in elections. *These centrifugal forces may be exacerbated if Europe fails to grow— a key risk over the next five years.* A slow and unwieldy governance structure can make it difficult to reach consensus on structural reforms, many of which are still in the hands of national governments. While progress has been made in developing a joint foreign policy framework, Europe as a political entity is extremely federalized and fragmented with individual countries retaining control, and any pan-European defense initiative generally has to be coordinated through NATO where U.S. still has a controlling say. Further, it's quite convenient for the EU (and Japan for that matter) that the U.S. is disproportionately responsible for their defense, a cost advantage that is hard to throw away. So the EU will be focused mostly on internal challenges, preventing it from assuming a decisive geo-strategic leadership role.

China to stay mainly Domestically Focused

Although China is the biggest long-term challenger to America's global authority, over the next five years, China will increasingly focus on domestic issues. China's biggest concern will be to maintain the legitimacy of the Communist Party, and part of that will require fostering a strong economy and building up a powerful military. Securing natural and strategic resources therefore will be crucial to China's objectives over the next five years, and that will also dictate its increasing focus on the near abroad. Also, with U.S./Russia relations likely to remain under pressure, China will try to maintain a more hands-off approach in international diplomacy while promoting "economic diplomacy" in various parts of the world. *Nevertheless, a more muscular and active China will inevitably be drawn into taking sides and will be suspected and accused of hegemonic intentions.*

While Russia's Wings are Clipped Economically

The more overt threat to the U.S. near term will likely continue to come from Russia. Ukraine has had unintended consequences for Russia, the most important one perhaps being that Russia has lost the chance of becoming an important international diplomatic player in forums where the U.S. and other Western countries' interests are involved such as G7, and NATO, thus marginalizing its role internationally. *The chief near term barriers to Russia's ambitions are financial. Russia was a weak economy to begin with, but falling oil prices have further circumscribed its options*. Over the next five years, Russia will likely continue to expand its military presence in and political alliance with countries in the near abroad, but these countries in many cases will be unwilling allies, further draining Russia's diplomatic and economic muscle. In addition, Russia will likely be faced with increasing tensions, if not open war, between countries of its near abroad, necessitating its financial and military involvement—for example, Armenia and Azerbaijan. It seems therefore that over the next five years, conflict with Ukraine, tension with Georgia and Moldova, potential conflict between Armenia and Azerbaijan, etc., will be a drain on Russia's economy and diplomacy, keeping its ambitions to become a superpower in check.

But the Middle East will Remain a Cauldron

The Middle East will remain in a state of unrest, roiled by many pockets of religious, ethnic, and national rivalries. While much of the region remains locked in a long-term struggle between secularist and Islamist ideologies, this broader question is complicated by the Sunni-Shia divide, which is also manifested in the rivalries between Iran and the major Sunni powers, such as Saudi Arabia, Turkey, and Egypt. It is made more dangerous by the rapid growth of ISIS, which must not be underestimated despite its seemingly outdated ideology, and which is likely to endure and evolve in some form. The addition of a nuclear option in Iran considerably raises the stakes, as does the traditional enmity with Israel. In contrast to the past, the West has limited influence in the region, but limited goals as well. In the case of the U.S., these goals include the containment of terrorism (ISIS in particular) and military aggression, the protection of oil production from these threats, the promotion of stability, and if possible, the furtherance of the Israel-Arab peace process. It has not been particularly successful in making significant strides on any of these recently, and they promise to continue to be difficult objectives to make progress on. As for the recent experiments in "Islamic democracy" in Iraq, Afghanistan, Tunisia, Egypt, and Turkey, the recent return to authoritarian rule in Egypt and the turn toward a more autocratic Turkey have dealt serious setbacks to these ideas, and the next half decade will get us closer to assessing their long term viability.

Investment Implications:

- It took 75 years (1870-1945) for the U.S. to go from being the #1 economy to the #1 superpower. It is unlikely to lose that designation in five years. Still, the fragmented 21st Century world does include some rising powers who will be less predictable, and more prickly, leading to a continued *elevated level of geopolitical risk.*

- Election cycles in the coming years in Europe and the fate of Greece may test the resolve, so far mostly solid, to preserve the union, as anti-EU parties in the UK, Spain, and elsewhere jockey for popularity. *The ECB's attempts to reflate and rejuvenate growth, if successful, will help, and the efficacy—or otherwise—of structural reforms in the periphery will become more apparent over the next five years. The failure to grow more robustly, which will exacerbate anti-EU sentiment, remains a key risk.*

- *China will continue to expand its influence in Asia and over Asian markets, but ongoing periodic flare-ups with Japan and other neighbors as it grows into its broader role seem likely.* Chinese long-term strategic connections with commodity producers will be crucial determinants of global supply chains. China will remain an anchor for global commodity demand, as its larger nominal economy makes up for its slower rate of growth. India will be a more formidable influence on the global economy in the coming decade as growth revives.

- Last, but not least, the Middle East and North African region looks set to be a cauldron for regional and intra-Islamic rivalries for a long period of time, during which *the threat of ISIS, threats to existing regimes, continued civil wars and proxy wars in Syria, Libya, Yemen and elsewhere, with concomitant risks of disruptions to oil supplies and threats to the West,* will remain significant risks.

Overall Key Investment Conclusions

- The structural reform required for faster global growth will not likely be forthcoming or may be insufficient
- The Fed's dot plot is too hawkish; rates markets should remain range-bound but volatile
- Duration is selectively attractive in certain developed and emerging currencies with steep curves
- Risk assets (stocks and high yield) may eke out positive returns but will likely fail to replicate past stellar performance
- Credit spreads are broadly attractive, especially financials, structured products, and selected high yield
- Despite commodity price drops and Fed hikes, emerging market hard currency debt is attractive, but country and asset selection is more important than ever
- Selected EM local markets and currencies offer value

Risks:

- A major recession in the U.S. or EU would invalidate our base case and cannot be ruled out.
- We see no immediate catalysts for a global crisis or signs of big bubbles in asset prices, but both remain significant risks in the medium term. QE and its eventual withdrawal could have unintended consequences.
- Poor transactional liquidity carries significant risks for investors, but also offers relative value opportunities
- In a globalized and multi-polar world, a number of ongoing threats could bring volatility to asset markets
    - European centrifugal forces
    - Terrorist, cyber, and nuclear threats
    - Geopolitical tensions

Notice

Source(s) of data (unless otherwise noted): PGIM Fixed Income as of 1 June 2015.

PGIM Fixed Income operates primarily through PGIM, Inc., a registered investment adviser under the U.S. Investment Advisers Act of 1940, as amended, and a Prudential Financial, Inc. ("PFI") company. PGIM Fixed Income is headquartered in Newark, New Jersey and also includes the following businesses globally: (i) the public fixed income unit within PGIM Limited, located in London; (ii) PGIM Japan Co., Ltd. ("PGIM Japan"), located in Tokyo; and (iii) the public fixed income unit within PGIM (Singapore) Pte. Ltd., located in Singapore. Prudential Financial, Inc. of the United States is not affiliated with Prudential plc, which is headquartered in the United Kingdom. Prudential, PGIM, their respective logos, and the Rock symbol are service marks of PFI and its related entities, registered in many jurisdictions worldwide.

These materials are for informational or educational purposes only. The information is not intended as investment advice and is not a recommendation about managing or investing assets. In providing these materials, PGIM is not acting as your fiduciary as defined by the Department of Labor. These materials represent the views, opinions and recommendations of the author(s) regarding the economic conditions, asset classes, securities, issuers or financial instruments referenced herein. Distribution of this information to any person other than the person to whom it was originally delivered and to such person's advisers is unauthorized, and any reproduction of these materials, in whole or in part, or the divulgence of any of the contents hereof, without prior consent of PGIM Fixed Income is prohibited. Certain information contained herein has been obtained from sources that PGIM Fixed Income believes to be reliable as of the date presented; however, PGIM Fixed Income cannot guarantee the accuracy of such information, assure its completeness, or warrant such information will not be changed. The information contained herein is current as of the date of issuance (or such earlier date as referenced herein) and is subject to change without notice. PGIM Fixed Income has no obligation to update any or all of such information; nor do we make any express or implied warranties or representations as to the completeness or accuracy or accept responsibility for errors. **Your capital is at risk and the value of investments can go down as well as up. These materials are not intended as an offer or solicitation with respect to the purchase or sale of any security or other financial instrument or any investment management services and should not be used as the basis for any investment decision. No risk management technique can guarantee the mitigation or elimination of risk in any market environment. Past performance is not a guarantee or a reliable indicator of future results and an investment could lose value. No liability whatsoever is accepted for any loss (whether direct, indirect, or consequential) that may arise from any use of the information contained in or derived from this report. PGIM Fixed Income and its affiliates may make investment decisions that are inconsistent with the recommendations or views expressed herein, including for proprietary accounts of PGIM Fixed Income or its affiliates.**

The opinions and recommendations herein do not take into account individual client circumstances, objectives, or needs and are not intended as recommendations of particular securities, financial instruments or strategies to particular clients or prospects. No determination has been made regarding the suitability of any securities, financial instruments or strategies for particular clients or prospects. For any securities or financial instruments mentioned herein, the recipient(s) of this report must make its own independent decisions.

Conflicts of Interest: PGIM Fixed Income and its affiliates may have investment advisory or other business relationships with the issuers of securities referenced herein. PGIM Fixed Income and its affiliates, officers, directors and employees may from time to time have long or short positions in and buy or sell securities or financial instruments referenced herein. PGIM Fixed Income and its affiliates may develop and publish research that is independent of, and different than, the recommendations contained herein. PGIM Fixed Income's personnel other than the author(s), such as sales, marketing and trading personnel, may provide oral or written market commentary or ideas to PGIM Fixed Income's clients or prospects or proprietary investment ideas that differ from the views expressed herein. Additional information regarding actual and potential conflicts of interest is available in Part 2A of PGIM Fixed Income's Form ADV.

In the United Kingdom and various European Economic Area (`EEA') jurisdictions, information is issued by PGIM Limited with registered office: Grand Buildings, 1-3 Strand, Trafalgar Square, London, WC2N 5HR. PGIM Limited is authorised and regulated by the Financial Conduct Authority of the United Kingdom (registration number 193418) and duly passported in various jurisdictions in the EEA. These materials are issued by PGIM Limited to persons who are professional clients or eligible counterparties for the purposes of the Financial Conduct Authority's Conduct of Business Sourcebook. In certain countries in Asia, information is presented by PGIM Singapore, a Singapore investment manager registered with and licensed by the Monetary Authority of Singapore. In Japan, information is presented by PGIM Japan, registered investment adviser with the Japanese Financial Services Agency. In South Korea, information is presented by PGIM, Inc., which is licensed to provide discretionary investment management services directly to South Korean investors. In Hong Kong, information is presented by representatives of PGIM (Hong Kong) Limited, a regulated entity with the Securities and Futures Commission in Hong Kong to professional investors as defined in Part 1 of Schedule 1 of the Securities and Futures Ordinance.

2015-1477