In contrast to this year's earlier path of data-driven inaction, the FOMC has now decisively stated: "In October, the Committee will initiate the balance sheet normalization program...." The Great Unwind is underway. The Fed has telegraphed the event well via a preliminary announcement in September 2014, a clarification and schedule outlined in June 2017, and a round of Fed Governor statements and speeches broadcasting the Fed's intent in an effort to avoid another "Taper Tantrum" like that of May 2013, when the Fed hinted at slowing its Quantitative Easing program and the market reacted violently. The New York Fed has projected that the program will likely reduce the current $4.5 trillion balance sheet to $2.9 trillion by 2021. Initiation of the unwind occurs amid expectations of a further 0.25% rate hike in December and three more in 2018.

Considerable uncertainty persists in global markets with valuations at multi-year highs on a number of measures. Belief in gravity—that stock prices must come down after such a streak—has been a losing investment strategy for some time now. If economic growth can be trusted to support valuations then the gravity-defying index levels may have some time still to fly. The IMF's just-released World Economic Outlook predicts improved 2017 and 2018 growth in most major markets, yet highlights downside risk for the medium term. The prospect of the Fed venturing into uncharted territory with the unwind, while simultaneously hiking rates, raises the possibility of excessive tightening that could stifle consumer confidence and business spending. Yet, even that downward looking scenario is by no means clear, as improving corporate profits and a buoyant international economic environment combine with benign inflation to provide a significant cushion to meet any market turbulence. With this in mind, the LISI Investment Committee voted in September to maintain its equity overweight stance in our model portfolios.

1. Fed in the Spotlight—the Great Unwind

We begin with our FOMC tools chart to show the path that led to a $4.5 trillion balance sheet that has stood since the end of the third phase of Quantitative Easing that ended in late 2014. Since then, the Fed has maintained a policy of reinvesting its securities portfolio holdings at maturity (see table below).

**Federal Reserve Board Tools and Key Decision Inputs (2001-2017)**
At present, the balance sheet consists of about $2.5 trillion in US Treasury securities and about $1.7 trillion in agency and mortgage-backed securities (plus $0.3 trillion in foreign and other assets). The Fed plans to reduce securities holdings on the balance sheet by about 10% each year over 2018 to 2021.

With a balance sheet normalization plan in place, the Fed will begin redeeming maturing US Treasury and Agency/Mortgage Backed securities (MBS) at a capped schedule to ensure an orderly wind down. The redemptions will begin small, at $4 billion to $6 billion per month, and grow over the next 12 months to a cap as described below. After 12 months, the Fed will review its continued sales at the level cap in place, $30 billion per month for US Treasury securities and $20 billion per month for MBS (see chart below).

### Federal Reserve Unwind - Schedule of Portfolio Runoff Caps

<table>
<thead>
<tr>
<th></th>
<th>Months 1-3</th>
<th>Months 4-6</th>
<th>Months 7-9</th>
<th>Months 10-12</th>
<th>Terminal Cap</th>
</tr>
</thead>
<tbody>
<tr>
<td>US Treasuries</td>
<td>6</td>
<td>12</td>
<td>18</td>
<td>24</td>
<td>30</td>
</tr>
<tr>
<td>Agency Debt and MBS</td>
<td>4</td>
<td>8</td>
<td>12</td>
<td>16</td>
<td>20</td>
</tr>
</tbody>
</table>

*Source: FOMC, LISI*

The amount of US Treasury securities holdings that mature can be predicted with precision due to fixed maturity dates. As these make up 56% of the portfolio, that adds to the predictability of future Fed balance sheet levels. With respect to MBS, however, the pace of maturities varies and depends on the rate of refinancing by homeowners. MBS pools are subject to refinancing risk as each refinanced mortgage results in a return of capital. Several factors including mortgage interest rate levels and housing supply affect mortgage paydowns. Despite these complications, the New York Fed has projected a path of Fed balance sheet levels taking into account market indicators for interest rates and other factors.

The chart below shows, for instance, that an estimated $380 billion in funds from maturing securities (or mortgage paydowns) will not get reinvested in 2018, and by the end of the year the Fed balance sheet (in the median case) will drop to $3.85 trillion. This process will repeat, conditions permitting, over the next several years until the Fed reaches its desired level for the balance sheet, expected to be lower than current but higher than its pre-crisis level. Under the median scenario for Fed liabilities and interest rates, the redemptions represent an annual reduction over 2018-2021 of 9%, 11%, 10%, and 6%, respectively (percentage of prior end-year balance). The NY Fed projects alternative tracks for the unwinding that put the 2021 Fed balance sheet within a range of $2.5 trillion and $3.8 trillion.

### The Great Unwind: Gross Redemptions and Balance Sheet Levels, 2017-21

![Fed Balance Sheet Unwind, Projected 2017-2021](chart.png)

*Source: New York Fed, LISI*

The unwind plan and its effects on holdings of US Treasurys and MBS, as estimated by the NY Fed, are shown on a quarterly basis in the charts below. Redemptions follow the path detailed above, while the
variability in reinvestments relate to estimated liability needs of the Fed in each period, including banks' demand for reserves and required cash. For UST securities, redemptions begin as a small proportion of reinvestments, but grow to outpace reinvestments by late 2018. For MBS, the caps are set at a level to permit paydown to occur relatively quickly. The Fed has expressed its preference to return to holding mainly US Treasury securities. Thus, reinvestments in MBS are projected to cease by mid-2018. In any event, the Fed will continually assess the situation and decide when to cease redemptions.

The Great Unwind: Federal Reserve Redemptions and Reinvestments by Quarter, 2017-21


A. Combined Effect of Balance Sheet Normalization and Rate Hikes

Prior to the 2008 financial crisis, the Fed balance sheet stood at less than $1.0 trillion and the FOMC achieved its targeted level of the Federal funds rate by increasing or restricting availability of reserves at the "Fed Window" through which money center banks borrowed from the Fed (and lent on to other banking institutions). In the wake of the financial crisis, monetary accommodation ballooned the Fed's balance sheet through a big supply of "Large Scale Asset Purchases" (Quantitative Easing, or QE) from 2008 to 2014. This large balance of reserves, which increased from $17 billion in 2006 to over $2,400 billion now, diminished the capacity of the FOMC to use reserve adjustments to control the Fed funds rate.

The Fed thus instituted two changes to get a tighter rein on interest rates. First, it began to pay interest on the reserves kept at the Fed by commercial banks (hence the boost in reserve liability holdings). Second, it instituted an overnight "reverse repo" program to allow non-bank institutions to also deposit money at the Fed. Since the level of reserves no longer has such a direct effect on interest rate management, these other price-oriented tools have become an important component of the Fed's ability to provide interest rate stability. At a time when the Fed contemplates raising rates four times over the next five quarters, the process and coordination between stated redemptions and the open market operations required to achieve interest rate stability around the evolving targets may present new difficulties for the FOMC, though these price-driven tools should, in practice, be easier to manage than the pre-crisis reserve volume activity. Discussions are underway regarding the future of these tools as the Fed reduces the balance sheet. Changes to the slate of Board Governors and the Chair could also affect the orthodoxy going forward.

B. Will Fed Asset Redemptions Crowd Out the Fixed Income Market?

A second question attends the planned unwinding of the Fed balance sheet: crowding out. Will bond yields shift materially up if the Fed, a major buyer of UST and MBS securities over the last several years, ratchets down its purchases? With an aggregate $400 billion in Fed reinvestment foregone in 2018 and in 2019, the extra supply could force down prices, hence send yields up. To gauge potential effects, we examine the share of overall issuance represented by the gross redemptions projected (see table below).

Impact of FOMC Redemptions on Issuance, 2018-19

<table>
<thead>
<tr>
<th></th>
<th>Redemptions</th>
<th>% of Avg 2015-17 Issuance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>UST</td>
<td>Agcy/MBS</td>
</tr>
<tr>
<td>2018</td>
<td>$229</td>
<td>152</td>
</tr>
<tr>
<td></td>
<td>7%</td>
<td>6%</td>
</tr>
<tr>
<td>2019</td>
<td>$257</td>
<td>166</td>
</tr>
<tr>
<td></td>
<td>8%</td>
<td>6%</td>
</tr>
</tbody>
</table>

Source: New York Fed, SIFMA, LISI
FOMC redemptions represent about 6% to 8% of average issuance over the last three years (with 1Q-3Q 2017 annualized). At a glance we would not expect these levels to exert a great impact on pricing, and additional factors are involved. For example, rising rates may increase demand for US fixed income generally, thus absorbing the impact of the Fed unwinding. Tax reform may also affect issuance of corporate debt, with ancillary effects on other sectors of the fixed income markets.

2. Real Economy Indicators Continue to Show Strength

The International Monetary Fund's (IMF) World Economic Outlook, published in early October, confirms the economic strength experienced in the world's major markets as previously indicated by confidence surveys and industrial production indicators. The IMF projects global growth of 3.6% in 2017 and 3.7% in 2018, with most major economies both in developed and emerging markets accelerating. The IMF further projects that downward risks mount in the medium term, particularly with respect to low inflation in advanced economies, aggregate debt levels in China, fiscal policy uncertainty and rising protectionism. The forward looking Purchasing Managers Indices, reflecting corporate planning, continue to show strength with readings above 50 in the US, Eurozone, and China (see chart below).

Key Purchasing Manager Indices (PMIs) 2013-17

Meanwhile, the "hard data" of Industrial Production have moved decidedly positive in the US and Eurozone, while China's measure has ticked up to the higher end of the 6%-7% range it has shown for several years. These indicators show that, despite the potential threat of rising rates to stifle demand, both planning and production are keeping their momentum (see chart below).

Industrial Production in the Major Economies, 2000-17

Source: Bloomberg, LISI
3. High Demand for both Equities and Fixed Income Remains

US equity markets now top 12% returns over three quarters, while the Eurozone has reached 9%. In line with IMF expectations on UK growth and Brexit uncertainty, the FTSE 100 shows only a 3% gain YTD. A newly energized Japanese economy has sent the Nikkei up 6.5%, while Chinese equities up nearly 8% reflect lessened risks compared to 2016.

### Key Market Performance Indicators

**Equities**

<table>
<thead>
<tr>
<th>Stock Index Levels:</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>1Q17</th>
<th>2Q17</th>
<th>3Q17 (QTD)</th>
<th>1/1 - 9/30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dow Jones Industrial Average</td>
<td>17,823</td>
<td>17,604</td>
<td>19,763</td>
<td>20,663</td>
<td>21,350</td>
<td>22,405</td>
<td>12.26%</td>
</tr>
<tr>
<td>S&amp;P 500</td>
<td>2,059</td>
<td>2,063</td>
<td>2,239</td>
<td>2,363</td>
<td>2,423</td>
<td>2,519</td>
<td>8.50%</td>
</tr>
<tr>
<td>FTSE 100</td>
<td>6,566</td>
<td>6,274</td>
<td>7,144</td>
<td>7,323</td>
<td>7,313</td>
<td>7,373</td>
<td>13.85%</td>
</tr>
<tr>
<td>Eurostoxx 50</td>
<td>3,146</td>
<td>3,288</td>
<td>3,291</td>
<td>3,501</td>
<td>3,442</td>
<td>3,595</td>
<td>0.08%</td>
</tr>
<tr>
<td>Nikkei</td>
<td>17,451</td>
<td>19,034</td>
<td>19,114</td>
<td>18,909</td>
<td>20,033</td>
<td>20,356</td>
<td>0.42%</td>
</tr>
<tr>
<td>Brazil Bovespa</td>
<td>50,007</td>
<td>43,350</td>
<td>60,227</td>
<td>50,007</td>
<td>7,313</td>
<td>6,566</td>
<td>-0.11%</td>
</tr>
<tr>
<td>China (Shanghai Composite)</td>
<td>3,235</td>
<td>3,573</td>
<td>3,104</td>
<td>3,223</td>
<td>3,192</td>
<td>3,349</td>
<td>-13.13%</td>
</tr>
</tbody>
</table>

Source: Bloomberg, LISI

Equities remain at high valuations, despite signs of improving earnings. The current earnings reporting cycle is just beginning, but corporations experienced profits growth in the first half of the year. The third quarter should see a similar trajectory, though potentially affected by the recent spate of major hurricanes making landfall. Valuations continue above long-term averages (see P/E chart below), with the S&P 500 at 21.6x as of September 29th, somewhat below its March 31st level of 21.8x and its historical dot-com era high of over 26x, but higher than the second quarter. Both Eurostoxx and Nikkei P/E ratios have settled in below their 2015-16 peaks, and are registering under 20x.

### Major Market Price/Earnings Ratios in Late Cycle (avg. 2001-3Q17)

![Image](source:Bloomberg, LISI)

US Treasury yields remain low despite the expectation of a new rate hike cycle beginning this December. After posting yield contractions during 2016, UK Gilts and Japanese Government 10-year bonds have experienced only a few basis points of yield increase, while German Bunds are up about a quarter percent through September. The resulting yields make developing market sovereigns outside the US unattractive relative to US Treasury bonds. Rising US rates are likely to cement that preference until central banks in the other advanced economies similarly begin to hike their reference rates.

### Key Market Performance Indicators

**Fixed Income**

<table>
<thead>
<tr>
<th>Average Yield (%)</th>
<th>4Q16</th>
<th>1Q17</th>
<th>2Q17</th>
<th>3Q17 (QTD)</th>
<th>1/1 - 9/30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yields:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>US Treasury 10-year Bond</td>
<td>2.14</td>
<td>1.83</td>
<td>2.44</td>
<td>2.39</td>
<td>2.30</td>
</tr>
<tr>
<td>UK Gilt 10-year</td>
<td>1.82</td>
<td>1.22</td>
<td>1.24</td>
<td>1.14</td>
<td>1.26</td>
</tr>
<tr>
<td>German Bund 10-year</td>
<td>0.51</td>
<td>0.13</td>
<td>0.21</td>
<td>0.33</td>
<td>0.47</td>
</tr>
<tr>
<td>Japanese Government 10-year Bond</td>
<td>0.36</td>
<td>-0.05</td>
<td>0.04</td>
<td>0.07</td>
<td>0.08</td>
</tr>
<tr>
<td>Bloomberg Emerging Markets Composite Bond</td>
<td>5.52</td>
<td>5.26</td>
<td>5.07</td>
<td>4.77</td>
<td>4.71</td>
</tr>
<tr>
<td>Chinese Government 10-year Bond</td>
<td>3.38</td>
<td>2.88</td>
<td>3.06</td>
<td>3.29</td>
<td>3.57</td>
</tr>
</tbody>
</table>

Source: Bloomberg, LISI; "∆ bps" = basis point change

Risk premia in the corporate bond universe show remarkable tightening due to a number of factors including low inflation and perception of reduced credit risk. Market observers continue to question whether
investors are being adequately compensated for the risks present and forthcoming, particularly with the unknown path for yields under a combined Fed regime of removing Quantitative Easing and hiking interest rates.

4. Market Effects and Portfolio Strategy

At its September meeting the LISI Investment Committee voted to maintain its current Tactical Asset Allocations across its five risk models. We are wary of heightened market sensitivity to the now arrived QE windup in the US and potentially across other regions, yet see support for equity valuations in improving corporate earnings. While the prospect of some geopolitical crisis seems increasingly likely, the markets have shown resiliency in recent years. Accordingly, across asset classes we favor the following in terms of allocation:

- **Fixed Income** – We recommend shortening duration and accepting somewhat higher credit risk to mitigate the anticipated rate hike cycle, while gearing on improving fundamentals.
- **Equities** – We maintain our positive view on equities and recently increased allocations given improving EPS, potential support from fiscal stimulus, and the Fed’s announced slow and steady balance sheet unwind and slow approach to hiking interest rates.
- **Alternatives** – We like the low correlation to core markets exhibited by alternative assets, and favor their inclusion as a small component of portfolios with moderate to higher risk profiles.
- **Cash** – We recommend keeping a small allocation in cash to capitalize on any market dislocations.

A prolonged post-crisis recovery has stepped through a minefield of minor disruptions and powered on as low inflation, broad-based growth and general optimism provide support to low yields and high equity valuations. A major test awaits in the ability of the FOMC to conduct nimbly its balance sheet unwinding while raising rates, and in the corresponding reaction of major market sectors. The warm, soft cushion of Quantitative Easing is about to become less comfortable. If, as new economics Nobel Laureate Richard H. Thaler recently observed, the market has been “napping,” it may be time to wake up and stay alert.
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