Moving On Up – Today’s Economic Environment

Presented by PFM Asset Management LLC
Gray Lepley, Senior Analyst, Portfolio Strategies

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Today’s Agenda

- U.S. ECONOMY
- MONETARY POLICY
- GEOPOLITICAL FACTORS
- INTEREST RATES
- FIXED INCOME MARKETS
Current Economic Conditions

U.S. Real GDP (QoQ, SAAR)

Core CPI

Core PCE

Fed's Long Term Inflation Target

Unemployment Rate

Consumer Confidence

Source: Bloomberg, latest data available as of 10/30/18. SAAR is seasonally adjusted annualized rate.
2Q and 3Q GDP Grew at Fastest Pace Since 2014

U.S. GDP Contributors and Detractors

- Personal Consumption
- Fixed Investment
- Private Inventories
- Imports
- Exports
- Government Expenditures

Source: Bureau of Economic Analysis, as of October 2018. 3rd quarter contributions are based on the first GDP growth estimate.
What We’re Watching…

**1-5 Year Corporate Spreads**

- Spreads widened on a stock market correction and concerns about growth in Europe.
- Recently, spreads have widen, amid lackluster corporate earnings, Italy’s budget, and U.S.–China trade tensions.

**Flattening Yield Curve (10-Yr vs. 3-Mo)**

- Flattest curve since 2007: 78 bps

**Market Implied Fed Rate Hike Probability**

- Economic Indicators are Strong
- Metrics At or Near Multi-Year Bests

<table>
<thead>
<tr>
<th>Metric</th>
<th>2018Q3</th>
<th>Q4</th>
<th>2019Q1</th>
<th>2019Q2</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. GDP</td>
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<tr>
<td>Unemployment Rate</td>
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<tr>
<td>Consumer Confidence</td>
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<tr>
<td>Job Openings</td>
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<tr>
<td>Consumer Sentiment</td>
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<tr>
<td>Avg. Hourly Earnings</td>
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<tr>
<td>U.S. Manufacturing</td>
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<tr>
<td>Inflation (Core PCE)</td>
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</tbody>
</table>

Source: Bloomberg, yield spreads from ICE BofAML Indices, as of 10/29/18. Implied Fed Rate Hike Probability, as of 10/30/2018.
The Fed: Dual Mandate or Dueling Mandate?

- Price Stability
- Maximum Employment
Strong Labor Market Persists as Unemployment Rate Hits 49-Year Low

Source: Bloomberg, as of September 2018.
U.S. Employers Struggle to Find Qualified Workers

**Ratio of Hires to Job Openings**

- August '06: 1.8
- August '08: 1.6
- August '10: 1.4
- August '12: 1.2
- August '14: 1.0
- August '16: 0.8
- August '18: 0.6

**Job Openings vs. Unemployed Workers**

- Job Openings: August '06: 8 million, August '18: 4 million
- Unemployed: August '06: 2 million, August '18: 4 million

Source: Bloomberg, as of 8/31/18.
Differences Between Inflation Indicators

<table>
<thead>
<tr>
<th></th>
<th>Import Prices</th>
<th>PPI</th>
<th>CPI</th>
<th>PCE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>measures</strong></td>
<td>Price of goods or services purchased from abroad by U.S. residents</td>
<td>Selling prices received by domestic producers of goods and services</td>
<td>Prices paid by urban consumers for a market basket of goods and services</td>
<td>Prices paid for goods and services purchased by or on behalf of persons</td>
</tr>
<tr>
<td><strong>release</strong></td>
<td>Monthly Before the 15th of the month 1-month lag</td>
<td>Monthly Before the 15th of the month 1-month lag</td>
<td>Monthly Before the 15th of the month 1-month lag</td>
<td>Monthly End of month 1-month lag</td>
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<tr>
<td><strong>composition</strong></td>
<td><img src="image1" alt="Graph" /></td>
<td><img src="image2" alt="Graph" /></td>
<td><img src="image3" alt="Graph" /></td>
<td><img src="image4" alt="Graph" /></td>
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</tbody>
</table>

- **Goods**
- **Food**
- **Energy**
- **Services**
Core Inflation Hits the Fed’s 2% Target

Inflation Measures (YoY)

Expectations for Average Inflation Rate over Next 5 Years

Source: Bloomberg, latest data available as of September 2018. Inflation expectations based on yield difference between 5-year Treasury note and 5-year Treasury Inflation Protected Securities (TIPS).
Has the Fed Achieved Its Dual Mandate?

Source: Federal Reserve Bank of Chicago, as of 9/26/18.

Fed’s long-term projection for unemployment rate

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FOMC’s September “Dot Plot” Projects One More Rate Hike in 2018

Fed Participants’ Assessments of ‘Appropriate’ Monetary Policy

- Sept-18 FOMC Projections
- Sept-18 Median
- Fed Funds Futures

History of Recent Fed Rate Hikes

<table>
<thead>
<tr>
<th>Month</th>
<th>Rate Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sept ‘18</td>
<td>2.00 – 2.25%</td>
</tr>
<tr>
<td>Jun ‘18</td>
<td>1.75 – 2.00%</td>
</tr>
<tr>
<td>Mar ‘18</td>
<td>1.50 - 1.75%</td>
</tr>
<tr>
<td>Dec ‘17</td>
<td>1.25 - 1.50%</td>
</tr>
<tr>
<td>Jun ‘17</td>
<td>1.00 - 1.25%</td>
</tr>
<tr>
<td>Mar ‘17</td>
<td>0.75 - 1.00%</td>
</tr>
<tr>
<td>Dec ‘16</td>
<td>0.50 - 0.75%</td>
</tr>
<tr>
<td>Dec ‘15</td>
<td>0.25 - 0.50%</td>
</tr>
</tbody>
</table>

Fed expects 1 more rate hike in 2018 & maintained future projections

Source: Federal Reserve and Bloomberg. Individual dots represent each Fed members’ judgement of the midpoint of the appropriate target range for the federal funds rate at each year-end. Fed funds futures as of 9/26/18.
Divergence of Central Banks

Source: Bloomberg, as of 10/29/18.
Key changes to the proposed agreement include:

- Requires a larger portion of auto parts come from a high wage factory paying a minimum of $16/hour in salaries to production workers. This provision will likely force automakers to shift suppliers from Mexico to Canada or the U.S.

- Requires Canada to allow more dairy imports into their country as well as ends a program in which they assist Canadian sellers of dairy products domestically and abroad.

Source: Census Bureau data includes YTD figures as of August 2018.
Geopolitical Risks Around the Globe

- North Korea tensions
- South China Sea dispute
- Russia-NATO conflict
- Brexit, Italy’s budget, and EU fragmentation
- Iran sanctions
- U.S.-Mexico border tensions
- Turkey currency crisis
- Argentina currency crisis
- Venezuela political crisis
- U.S.-China trade tensions
- North Korea tensions
- South China Sea dispute
- U.S. mid-term elections
IMF Outlook For Lower Global Growth

World GDP Projections

Volatility Re-Enters the Market; S&P Down over Year

Year-to-Date Change

High: +9.6% YTD

-0.6% YTD

2017 close

Source: Bloomberg, as of 10/29/18.
# U.S. Yield Curve Has Flattened

<table>
<thead>
<tr>
<th>Tenor</th>
<th>Current 9/29/18</th>
<th>Year-End 12/31/2017</th>
<th>Year-End 12/31/16</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 month</td>
<td>2.30%</td>
<td>1.38%</td>
<td>0.45%</td>
</tr>
<tr>
<td>6 month</td>
<td>2.46%</td>
<td>1.53%</td>
<td>0.61%</td>
</tr>
<tr>
<td>1 year</td>
<td>2.63%</td>
<td>1.73%</td>
<td>0.82%</td>
</tr>
<tr>
<td>2 year</td>
<td>2.82%</td>
<td>1.88%</td>
<td>1.21%</td>
</tr>
<tr>
<td>3 year</td>
<td>2.87%</td>
<td>1.97%</td>
<td>1.47%</td>
</tr>
<tr>
<td>5 year</td>
<td>2.92%</td>
<td>2.21%</td>
<td>1.95%</td>
</tr>
<tr>
<td>10 year</td>
<td>3.08%</td>
<td>2.41%</td>
<td>2.48%</td>
</tr>
</tbody>
</table>

Source: Bloomberg, as of 10/29/2018.
Spread Between 10-Year and 2-Year Treasuries Tight

Current: 28bps

Source: Bloomberg, as of 10/29/2018.
Yield Curve Inversions Historically Precede Recessions

Spread Between 10-Year and 2-Year Treasury Yields

yield curve inverts

worth watching

Source: Bloomberg, as of 10/29/2018.

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What Does the Flattening of the Yield Curve Mean?

Source: LPL Research, FactSet.
**Where Are We in the Economic Cycle?**

### Different Indicators Give Differing Views

<table>
<thead>
<tr>
<th>Duration</th>
<th>Length of cycle</th>
<th>Late</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slack</td>
<td>Labor market slack</td>
<td>Late</td>
</tr>
<tr>
<td></td>
<td>Output market slack</td>
<td>Late</td>
</tr>
<tr>
<td>Cost pressures</td>
<td>Wage growth</td>
<td>Mid</td>
</tr>
<tr>
<td></td>
<td>Unit labor cost growth</td>
<td>Early</td>
</tr>
<tr>
<td>Cyclical demand</td>
<td>Resi investment/GDP</td>
<td>Early</td>
</tr>
<tr>
<td></td>
<td>Housing starts</td>
<td>Mid</td>
</tr>
<tr>
<td></td>
<td>Consumer durables/GDP</td>
<td>Early</td>
</tr>
<tr>
<td></td>
<td>Capital spending</td>
<td>Mid</td>
</tr>
<tr>
<td>Confidence</td>
<td>Cyclically adj. confidence</td>
<td>Mid</td>
</tr>
<tr>
<td>Leverage</td>
<td>Household leverage</td>
<td>Early</td>
</tr>
<tr>
<td></td>
<td>Most levered companies</td>
<td>Mid</td>
</tr>
<tr>
<td>Credit</td>
<td>Bond default rates</td>
<td>Mid</td>
</tr>
<tr>
<td></td>
<td>Loan delinquencies</td>
<td>Mid</td>
</tr>
<tr>
<td></td>
<td>Bank lending standards</td>
<td>Mid</td>
</tr>
<tr>
<td>Profits</td>
<td>S&amp;P 500 margins</td>
<td>Late</td>
</tr>
<tr>
<td></td>
<td>Earnings rel. to normalized</td>
<td>Mid</td>
</tr>
</tbody>
</table>

**The Conference Board Leading Economic Index Continues to Rise**

- Supports the continuing solid growth in the economy
- Suggests no recession in the near-term

Short-Term Credit Spreads Have Widened Due to Volatility

Yield Spread of 6-month Commercial Paper over T-Bill

Money Market Yield Curves

Source: Bloomberg, PFMAM Trading Desk, as of 10/29/18. Not a specific recommendation. 6-mo CP yield spread based on A1/P1 rated CP index.
Short-Term Treasuries Compensate Investors for Multiple Hikes in 2019

Source: Bloomberg, as of October 29, 2018. Average overnight repo yield assumes an initial repo rate of 2.13% and 25 basis point (0.25%) interest rate hikes in December of 2018 and March, June, and September of 2019; it is calculated by determining the average resulting yield over each time horizon.
Federal Agency Spreads Remain Tight

Federal Agency Yield Spreads

- Agency 10/29/18
- Agency 12 Mos Max

Source: Bloomberg as of 10/29/2018.
Volatility in Corporate Securities

Yield Spread (OAS) of 1-5 Year Investment Grade Corporate Index

Source: Bloomberg, ICE BofA Merrill Lynch Indices, as of 10/29/2018.
Yield Environment as of October 29, 2018

<table>
<thead>
<tr>
<th>Maturity</th>
<th>Treasury</th>
<th>Federal Agency</th>
<th>AA Corporate</th>
<th>A Corporate</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-Month</td>
<td>2.31%</td>
<td>2.29%</td>
<td>2.45%</td>
<td>2.43%</td>
</tr>
<tr>
<td>6-Month</td>
<td>2.46%</td>
<td>2.42%</td>
<td>2.66%</td>
<td>2.71%</td>
</tr>
<tr>
<td>1-Year</td>
<td>2.63%</td>
<td>2.63%</td>
<td>2.83%</td>
<td>2.98%</td>
</tr>
<tr>
<td>2-Year</td>
<td>2.82%</td>
<td>2.87%</td>
<td>3.12%</td>
<td>3.26%</td>
</tr>
<tr>
<td>3-Year</td>
<td>2.87%</td>
<td>2.96%</td>
<td>3.24%</td>
<td>3.41%</td>
</tr>
<tr>
<td>5-Year</td>
<td>2.92%</td>
<td>3.07%</td>
<td>3.45%</td>
<td>3.60%</td>
</tr>
</tbody>
</table>

Source: Bloomberg BVAL yield curves for Treasury and Corporate. TradeWeb for Federal Agency yields. 3 and 6 month corporate yields from commercial paper; A-1+ for AA and A-1 for A. Yields are for indicative purposes only; actual yields may vary by issue.
Q3 Sector Returns Favor Spread Products

2018 Q3 1-5 Year Sector Returns

- U.S. Treasury: 0.04%
- Agency: 0.25%
- Corporate (A-AAA): 0.66%
- Agency MBS: 0.10%
- ABS (AAA): 0.55%

2018 Q3 Treasury Returns

- 0-1 Years: 0.49%
- 1-3 Years: 0.19%
- 3-5 Years: -0.16%
- 5-7 Years: -0.37%
- 7-10 Years: -0.79%
- 10+ Years: -2.81%

Source: ICE BofAML Indices. MBS and ABS indices are 0-5 year, based on weighted average life. As of 9/30/18.
Sector Returns over Time

Source: ICE BofA Merrill Lynch Indices. MBS index is 0-5 year, based on weighted average life. As of 9/30/2018. Returns greater than 1-year are annualized.
Return Benefits of Diversification

Example 1-5 Year Portfolio Sector Allocation

<table>
<thead>
<tr>
<th>Sector Allocation</th>
<th>5-Year Returns</th>
<th>2017 Returns</th>
</tr>
</thead>
<tbody>
<tr>
<td>15% 30% 25% 10% 10%</td>
<td>1.20% 1.35%</td>
<td></td>
</tr>
<tr>
<td>15% 40% 25% 10% 10%</td>
<td>1.17% 1.29%</td>
<td></td>
</tr>
<tr>
<td>25% 40% 25% 10% 10%</td>
<td>1.09% 1.19%</td>
<td></td>
</tr>
<tr>
<td>40% 50% 10%</td>
<td>0.86% 0.82%</td>
<td></td>
</tr>
<tr>
<td>50% 50%</td>
<td>0.83% 0.75%</td>
<td></td>
</tr>
<tr>
<td>100%</td>
<td>0.73% 0.65%</td>
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</tbody>
</table>

Portfolio Return

Example portfolio returns are based on the ICE BofA Merrill Lynch 1-5 Year indices for all sectors except for Supranational which uses the 1-5 Year index and are annualized for trailing periods longer than one year. Source: ICE BofA Merrill Lynch Indices, as of 9/30/18.
Total Return During Tightening Periods

Source: Bloomberg, as of 9/30/18.
Total Return vs. Yield During Tightening Periods

Source: Bloomberg, as of 8/31/18. Includes the 1-5 Year Treasury Index Total Return 18-month MA and the 5 Year Treasury Index Yield.

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Long-Term Benefit of Longer Duration Investment Strategies

Fed tightening

Source: Bloomberg, as of 9/30/18.

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