Market Review and Q4 2019 Outlook

as of October 1, 2019
## Asset Allocation Views

The views contained herein are as of October 1, 2019 and may have changed since that time.

### Asset Allocation

The MML Investment Advisers, LLC portfolio management maintains a neutral position for equities versus fixed income – Global stocks delivered mixed performance in the third quarter as slowing global growth and renewed concerns over trade weighed on investors. Rate cuts by the Federal Reserve Open Market Committee (FOMC) in July and September, along with expectations for future rate cuts, pushed the U.S. dollar higher and helped U.S. stocks top international stocks. U.S. bonds, especially longer duration bonds, had another strong quarter as the expectations for lower global growth and easing global monetary policy drove interest rates lower.

### Equity & Commodity Related

**Neutral on U.S. large cap** – While valuations are rich, the U.S. economic and employment data remains supportive.

**Negative on U.S. small cap** – Valuations relative to large cap stocks are less compelling at this point in the business cycle.

**Neutral on international developed** – Better valuations than U.S. stocks and more supportive monetary policy outside the U.S. are offset by relative weaker economic growth.

**Positive on emerging markets** – Inexpensive valuations and stabilized global growth are positives, but we are monitoring the impact of policy changes and the ongoing trade war.

**Negative on U.S. REITS** – Inflationary pressures remain weak and valuations relative to U.S. stocks are no longer as compelling.

**Neutral on commodities** – Prices remain somewhat attractive offset by slowing global demand growth.

### Fixed Income

**Negative on duration** – Global fiscal and monetary stimulus support economic growth which in turn supports rising interest rates.

**Positive on U.S. Treasuries** – Yields and inflation expectations are modest. As corporate bond spreads tightened, the attractiveness of U.S. Treasuries has improved.

**Negative on investment grade** – Low yields and potential inflationary pressures mean that the risk-return trade-off is modestly better versus below-investment grade bonds.

**Neutral on high yield** – Improved yield spreads versus U.S. Treasuries and investment-grade corporate bonds combined stable global growth expectations make high yield bonds more attractive.

**Neutral on U.S. Treasury Inflation-Protected Securities (TIPS)** – Slowing global economic growth is expected to reduce inflationary pressures.

**Neutral on international bonds** – Yield differentials and currency exposures remain compelling.

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* Equity include equities and alternatives. Fixed income includes fixed income and cash.
Investors concerns over slowing global economic growth were countered by strong consumption and lower rates.

Q3 2019 Economic Review

• Trade war related concerns of a global economic slowdown weighed on investors as they tried to balance strong U.S. consumption, a rebound in U.S. housing and renewed monetary stimulus from a majority of the world’s central banks.
• The temporary inversion of the U.S. yield curve troubled investors. Inversions of the yield curve, where short-term rates are higher than long-term rates, sometimes precede future economic contractions.
• An economic slowdown in China and Europe led the Organization for Economic Co-operation and Development (OECD) to lower its 2019 global growth forecast from 3.2% to 2.9%. This is the slowest pace since the global financial crisis. China’s Premier Li Keqiang acknowledged it would be very difficult for China’s economy to continue to grow at 6% or more.
• The trade war has been a significant driver of the global economic slowdown. The U.S. and Chinese trade delegations are scheduled to meet in Washington D.C. in October to resume high-level trade talks. Investors are expecting that an interim deal is in the works that will postpone this year’s remaining U.S. tariffs in exchange for China committing to make significant purchases of U.S. agricultural products.
• U.S. companies in the S&P 500® Index reported that second quarter 2019 earnings per share declined by -0.4% as the trade war slowed economic growth and increased the cost of doing business. Globally, corporate earnings are expected to grow in 2019 as corporations adjust to tariffs and lower interest rates reduce debt servicing costs.
• Investor concerns regarding European Union stability remained top of mind as a Brexit agreement remains elusive with the U.K. The U.K. prime minister Boris Johnson has pledged to deliver Brexit by the October 31 deadline.

Q3 2019 Markets Review

• Global stocks delivered mixed performance as slowing global growth and renewed concerns over trade weighed on investors.
• Despite rate cuts by the FOMC in July and September, the U.S. dollar climbed higher and helped U.S. stocks beat international stocks for the quarter.
• Emerging markets stocks continued to trail their developed market brethren as investors remained concerned over the impact of the ongoing trade war on exporters.
• U.S. bonds, especially longer duration bonds, had another strong quarter as the expectations for lower global growth and easing global monetary policy drove interest rates lower.

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>QTD (%)</th>
<th>YTD (%)</th>
<th>1 Year (%)</th>
<th>Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. Large Cap Stocks</td>
<td>1.70</td>
<td>20.55</td>
<td>4.25</td>
<td>S&amp;P 500 Composite</td>
</tr>
<tr>
<td>U.S. Mid Cap Stocks</td>
<td>1.22</td>
<td>19.47</td>
<td>1.60</td>
<td>Russell Mid Cap</td>
</tr>
<tr>
<td>U.S. Value Stocks</td>
<td>1.23</td>
<td>17.47</td>
<td>3.10</td>
<td>Russell 3000 Value</td>
</tr>
<tr>
<td>U.S. Growth Stocks</td>
<td>1.10</td>
<td>22.75</td>
<td>2.70</td>
<td>Russell 3000 Growth</td>
</tr>
<tr>
<td>Developed Market Stocks</td>
<td>-1.07</td>
<td>12.80</td>
<td>-1.34</td>
<td>MSCI EAFE (net)</td>
</tr>
<tr>
<td>Emerging Market Stocks</td>
<td>-4.25</td>
<td>5.89</td>
<td>-2.02</td>
<td>MSCI EM (net)</td>
</tr>
<tr>
<td>U.S. Bonds</td>
<td>2.27</td>
<td>8.52</td>
<td>10.30</td>
<td>Barclays US Agg Bond</td>
</tr>
<tr>
<td>Developed Market Bonds</td>
<td>-0.58</td>
<td>4.38</td>
<td>5.34</td>
<td>Barclays Gbl Agg Ex US</td>
</tr>
<tr>
<td>Emerging Market Bonds</td>
<td>1.34</td>
<td>12.08</td>
<td>10.74</td>
<td>JPM EMBI Global</td>
</tr>
<tr>
<td>U.S. High Yield Corporate Bonds</td>
<td>1.33</td>
<td>11.41</td>
<td>6.36</td>
<td>Barclays US Corp High Yield</td>
</tr>
<tr>
<td>U.S. Long Duration Treasuries</td>
<td>8.15</td>
<td>20.20</td>
<td>25.21</td>
<td>Barclays US Treasury 20+Yr</td>
</tr>
</tbody>
</table>

Source: Morningstar Direct℠ as of 9/30/2019
Past performance does not guarantee future results.
Consumers still have plenty of reasons to be optimistic despite a lukewarm economy and high stock prices

A near all-time low unemployment rate, rising income and increased wealth continues to keep consumer confidence near post recession highs.

Retail sales remained strong as low unemployment and strong wage growth offset slowing global economic growth.

Historically low unemployment spurs wage growth, especially in the private sector.

Companies are paying more to attract and retain workers as the unemployment rate has fallen to its lowest level since 1969 at 3.5%. Continued wage growth may create risk that wages will cut into corporate earnings and make stocks more expensive.

Consumer confidence is strong and confident consumers tend to spend their hard-earned wages. House sales and prices have also rebounded after tax law changes reduced the ability for home buyer to deduct interest payments. Personal consumption expenditures grew at an annualized rate of 3.7% as of August 2019.

Retail sales remained strong as low unemployment and strong wage growth offset slowing global economic growth.
Monetary stimulus is expected to support corporate earnings growth despite a slowing global economy.

More supportive monetary policy by the Fed and stable economic growth have fueled expectations for continued corporate earnings growth despite elevated debt levels.

U.S. economic growth remains solid, especially relative to the rest of the world, resulting in a stronger U.S. dollar.

While global debt levels are elevated, a decade of expansive low-interest monetary policy keeps borrowing costs low. The Federal Reserve Board’s (Fed) shift from monetary tightening back to stimulus should help keep interest rates lower for longer.

U.S. companies continue to deliver positive earnings per share growth despite the disruption that the global trade war has caused.

Strong sales growth, operating efficiencies, lower taxes, lower interest rates and net share buybacks among companies in the S&P 500® Index are expected to result in earnings per share growth of 1.3% in 2019 and 10.5% in 2020. Rising wages and higher debt levels may put continued earnings growth at risk from tariffs.
U.S. stock markets appear more fairly valued given forecasts for positive earnings growth and falling interest rates.

Global stocks lost some of their luster this quarter as the trade war escalated, market volatility picked up and global growth began to slow.

**S&P 500 Index** stock valuations are just 4% higher than their 25-year average.

Historically high corporate profit margins, elevated corporate debt levels, political uncertainty, increasing labor costs, and greater investor reliance on inflated non-GAAP earnings may increase the risk of a stock market correction.

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The U.S. Treasury yield curve remained inverted during the quarter fueling investor concerns over future economic growth.

Every recession for the past 60 years was preceded by an inverted yield curve. That said, every inverted yield curve was not followed by an imminent recession.
Disclosures

Past performance in no guarantee of future results. The information contained in this document represents the views of the MML Investment Adviser, LLC portfolio management team. This material is provided for informational purposes only and is not intended to be investment advice or a recommendation to take any particular investment action. The views contained herein are as of April 30, 2019 and may have changed since that time.

Risk Disclosures for Certain Asset Categories – Please note that your plan may not offer all of the investment types discussed below.

• Risks of investing in bond and debt securities investments include the risk that a bond issuer will default by failing to repay principal and interest in a timely manner (credit risk) and/or the risk that the value of these securities will decline when interest rates increase (interest rate risk).

• Risks of investing in inflation-protected bond investments include credit risk and interest rate risk. Neither the bond investment nor its yield is guaranteed by the U.S. government.

• High-yield bond investments are generally subject to greater market fluctuations and risk of loss of income and principal than lower-yielding debt securities investments.

• Investments that track a benchmark index are professionally managed. However, the benchmark index itself is unmanaged and does not incur fees or expenses and cannot be purchased directly for investment.

• Investments in value stocks may remain undervalued for extended periods of time, and the market may not recognize the intrinsic value of these securities.

• Investments in growth stocks may experience price volatility due to their sensitivity to market fluctuations and dependence on future earnings expectations.

• Investments in companies with small or mid market capitalization (“small caps” or “mid caps”) may be subject to special risks given their characteristic narrow markets, limited financial resources, and less liquid stocks, all of which may cause price volatility.

• International/global investing can involve special risks, such as political changes and currency fluctuations. These risks are heightened in emerging market equities. Other trading restrictions may apply. Please see the investment’s prospectus for more details.

• A significant percentage of the underlying investments in aggressive asset allocation portfolio investments have a higher than average risk exposure. Investors should consider their risk tolerance carefully before choosing such a strategy.

• An investment with multiple underlying investments may be subject to the expenses of those underlying investments in addition to those of the investment itself.

• Investments may reside in the specialty category due to 1) allowable investment flexibility that precludes classification in standard asset categories and/or 2) investment concentration in a limited group of securities or industry sectors. Investments in this category may be more volatile than less-flexible and/or less-concentrated investments and may be appropriate as only a minor component in an investor's overall portfolio.

• Participants with a large ownership interest in a company or employer stock investment may have the potential to manipulate the value of units of this investment option through their trading practices. As a result, special transfer restrictions may apply. This type of investment option presents a higher degree of risk than diversified investment options under the plan because it invests in the securities of a single company.

• Investments that invest more of their assets in a single issuer or industry sector (such as company stock or sector investments) involve additional risks, including unit price fluctuations, because of the increased concentration of investments.

• A participant will be prohibited from transferring into mutual funds and similar investments if they have transferred into and out of the same investment within the previous 60 days. Certain stable value, guaranteed interest, fixed income and other investments are not subject to this rule. This rule does not prohibit participants from transferring out of any investment at any time.

Please consider an investment option’s objectives, risks, fees and expenses carefully before investing. This and other information can be found in the applicable prospectuses or summary prospectuses, if any, or investment profiles (fact sheets) for the investment options listed, which are available from your plan sponsor, on the plan participant website at www.retiresmart.com (login required), or by contacting our Participant Information Center at 1-800-743-5274 between 8:00 a.m. and 9:00 p.m. ET, Monday through Friday. Please read them carefully before investing.

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