Past performance is 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.
Asset Allocation Views

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Asset Allocation
The MML Investment Advisers, LLC portfolio management maintains a neutral position for equities versus fixed income – Investors drove global stock prices up sharply in the first quarter of 2019, responding positively to the Federal Reserve’s (Fed) pause in monetary policy tightening, evidence that the global economy would continue to grow and increased expectations that the global trade war was on a path to resolution. A neutral stance reflects these positive factors while recognizing downside risk given elevated stock prices, global growth concerns, high debt levels, lackluster corporate earnings growth and political and trade uncertainty.

Equity & Commodity Related
Neutral on U.S. large cap (upgrade) – Valuations, while rich, have improved as has U.S. economic growth and employment data.
Slight 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.
Slight positive on emerging markets – Inexpensive valuations and decent global growth are positives, but we are monitoring the impact of policy changes and the ongoing trade war.
Neutral on U.S. REITS – Valuations relative to U.S. stocks are no longer as compelling though a more accommodative monetary policy stance by the Fed should constrain interest rates.
Neutral on commodities (downgrade) – Prices remain somewhat attractive offset by slowing global demand growth.

Fixed Income
Neutral on duration (upgrade) – Positive global economic growth supports rising interest rates while the extra yield on longer-dated bonds is less compelling.
Slightly positive on U.S. Treasuries – Yields and inflation expectations are modest. As corporate bond spreads tightened, the attractiveness of U.S. Treasuries has improved.
Slight 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.
Negative on high yield – Low yield spreads versus U.S. Treasuries and investment-grade corporate bonds reduce the upside even in best-case scenarios.
Neutral on U.S. Treasury Inflation-Protected Securities (TIPS) – Slowing global economic growth is expected to reduce inflationary pressures.
Neutral on international bonds – Underperformed U.S. bonds this quarter making the yield differential and currency exposures more compelling.

Overall Position

<table>
<thead>
<tr>
<th>Fixed Income*</th>
<th>Equity*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Neutral</td>
</tr>
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</table>

Equity*

<table>
<thead>
<tr>
<th>U.S. Large Cap</th>
<th>Neutral</th>
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<tbody>
<tr>
<td>U.S. Small Cap</td>
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<tr>
<td>International Developed</td>
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<tr>
<td>Emerging Markets</td>
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<tr>
<td>U.S. REITS</td>
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<tr>
<td>Commodities</td>
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Fixed Income*

<table>
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<tr>
<th>Duration</th>
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<tbody>
<tr>
<td>Treasuries</td>
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<tr>
<td>Investment Grade</td>
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<tr>
<td>High Yield</td>
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<tr>
<td>TIPS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>International</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Current Position | Neutral |
Previous Quarter |   |   |

* Equity include equities and alternatives. Fixed income includes fixed income and cash.
Investors concerns over slowing global economic growth drove stock market volatility higher and prices lower

Q1 2019 Economic Review

• Investor pushed aside concerns over slowing global economic growth and increased market volatility to push global stock prices to near all-time highs. The market rally was fueled by the U.S. Federal Reserve Open Market Committee’s (FOMC) decision to hold off on interest rate hikes in 2019, the end of the government shutdown, and evidence that the trade war between the U.S. and China was on a path to resolution.

• Economists forecast global economic growth to remain positive in 2019. The expectation is for developed markets to grow by around 2%, while emerging markets are expected to grow by over 4%. However, concerns over a policy misstep in China continues to be top of mind.

• In January, the FOMC pivoted sharply by announcing that it would leave interest rates unchanged at a range of 2.25% to 2.50% and that it would be patient with future interest rate adjustments. The 10-year U.S. Treasury yield ended the quarter at 2.41%, down 0.27% from the prior quarter. Investors are currently expecting the FOMC to reduce interest rates by 0.25% by the end of 2019 despite the FOMC signaling no change.

• U.S. companies in the S&P 500® Index reported fourth quarter 2018 earnings per share growth of 17.1%. The corporate earnings growth story around the globe is similarly positive. Developed country stocks, represented in the MSCI World index, delivered 12-month earnings per share growth of 13.6% and emerging market stocks, represented in the MSCI Emerging Markets index, delivered earnings growth of 9.0%. 2019 corporate earnings are expected to be more subdued with the first half of the year trending negative before ticking positive in the second half.

• Investor concerns regarding European Union stability remained top of mind as a Brexit agreement remains elusive with the March 29 deadline being extended to October 31.

Q1 2019 Markets Review

• Global stocks outperformed global bonds for the quarter with U.S. growth stocks leading the charge. Clear signals from the FOMC that they would do everything in their power to counteract an economic downturn or financial turmoil was well received by investors.

• Global bonds also had a decent quarter as the pause on the tightening of monetary policy drove economic growth expectations lower, thus driving interest rates lower.

• Emerging markets bonds had a strong quarter as concerns over stalling global economic growth and corporate earnings challenges lessened.

<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>13.65</td>
<td>13.65</td>
<td>9.50</td>
<td>S&amp;P 500 Composite</td>
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<tr>
<td>U.S. Mid Cap Stocks</td>
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<td>14.37</td>
<td>2.89</td>
<td>Russell Mid Cap</td>
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<td>U.S. Small Cap Stocks</td>
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<td>14.58</td>
<td>2.05</td>
<td>Russell 2000</td>
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<tr>
<td>U.S. Value Stocks</td>
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<td>11.93</td>
<td>5.30</td>
<td>Russell 3000 Value</td>
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<tr>
<td>U.S. Growth Stocks</td>
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<td>16.18</td>
<td>12.06</td>
<td>Russell 3000 Growth</td>
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<tr>
<td>Developed Market Stocks</td>
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<td>9.98</td>
<td>-3.71</td>
<td>MSCI EAFE (net)</td>
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<tr>
<td>Emerging Market Stocks</td>
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<td>9.91</td>
<td>-7.41</td>
<td>MSCI EM (net)</td>
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<tr>
<td>U.S. Bonds</td>
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<td>2.94</td>
<td>4.48</td>
<td>Barclays US Agg Bond</td>
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<td>Developed Market Bonds</td>
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<td>1.52</td>
<td>-4.13</td>
<td>Barclays Gbl Agg Ex US</td>
</tr>
<tr>
<td>Emerging Market Bonds</td>
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<td>6.59</td>
<td>3.52</td>
<td>JPM EMBI Global</td>
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<tr>
<td>U.S. High Yield Corporate Bonds</td>
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<td>7.26</td>
<td>5.93</td>
<td>Barclays US Corp High Yield</td>
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<tr>
<td>U.S. Long Duration Treasuries</td>
<td>4.73</td>
<td>4.73</td>
<td>6.20</td>
<td>Barclays US Treasury 20+ Yr</td>
</tr>
</tbody>
</table>

Source: Morningstar Direct℠ as of 3/31/2019
Past performance does not guarantee future results.
Consumers still finding good reasons to be optimistic despite increased stock market volatility

Low unemployment, rising income, and increased wealth pushed consumer confidence near post recession highs.

New home sales are back on track after a sharp downturn in response to the FOMC interest rate hike and tax law changes.

Consumer confidence rebounded and confident consumers tend to spend their hard-earned wages. Personal consumption expenditures grew at an annualized rate of 4.2% as of February 2019.

Wage growth is especially strong 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 3.8%. Continued wage growth may create risk that wages will cut into corporate earnings.
Positive economic data and a pause in monetary tightening by the FOMC fueled expectations for continued corporate earnings growth despite elevated debt levels.

Strong U.S. economic data continues and could strengthen with a pause in monetary tightening and resolution of the trade dispute with China.

While global debt levels are elevated, a decade of expansive low-interest monetary policy keeps borrowing costs low. The FOMC’s pause on future interest rate hikes should help keep them lower for longer.

U.S. companies continue to deliver strong earnings per share growth.

Strong sales growth, operating efficiencies, lower taxes, and net share buybacks among companies in the S&P 500® Index are expected to result in fourth quarter earnings per share growth of 12.2% and a 6.3% earnings per share growth rate in 2019. Rising wages and debt servicing costs may put continued earnings growth at risk.

Source: Factset
U.S. stock markets are mostly recovered from the Q4 2018 correction and once again appear overvalued.

Investors rushed back into stocks this quarter after assurances by the FOMC that they would do everything in their power to counteract economic downturn or financial turmoil.

S&P 500® Index stock valuations are 12% higher than their 10-year average.

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

The U.S. treasury yield curve inverted on March 22 as investors became increasingly concerned over future economic growth.

This is the first time the yield curve inverted since we exited the last recession. 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

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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 most mutual funds and similar investments if they have transferred in to 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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04/19