Fixed Income

Q4 2018 REVIEW

FIXED INCOME COMMENTARY: Q4 2018

by Matthew S. Guleserian, CFA

Market Review

- Bond prices struggled most of the year against a Federal Reserve intent on raising interest rates each quarter and investors rebalancing to stocks and other asset classes promising better returns. Price returns for high grade municipal and corporate bonds through the first ten months of the year were mostly negative, between 0% and -5%, depending on quality and maturity.
- Market volatility was elevated throughout the fourth quarter caused by global trade tensions, rancorous political debate over border security and a possible government shutdown, and growing concerns about the Fed's path for raising interest rates.
- By December, investors finally succumbed to pressures and ran for safety, which caused a rally in the bond market. Bond returns were mostly positive by 1% to 4% during the fourth quarter, depending on asset class and maturity.
- After hitting a seven-year high of 3.26% on October 9th, the yield on the 10-year US treasury declined by 58 basis points to end the year at 2.68%, just 28 basis points higher than where it started the year.
- December's performance boost was too little to save most fixed income asset classes from producing negative returns for the year. T-bills were among the best performing asset classes for the year generating about a 2% return. Municipal bonds were once again a bright spot, generating positive returns. The Bloomberg Barclays Municipal Bond Index returned 1.20% and 1.28% for the quarter and for the year, respectively.
- The US treasury and municipal yield curves flattened further during the fourth quarter with shorter maturity yields declining less than longer maturity yields. The spread between the 2yr and 10yr treasury and municipal curves flattened to 19 basis points and 51 basis points, respectively. For the year, the 2yr/10yr treasury spread flattened 33 basis points, while the 2yr/10yr municipal spread steepened by just 6 basis points.
- Corporate bonds, which are highly correlated to equities, were the worst performing sector for the quarter and for the year. The Bloomberg Barclays Corporate Index returned -0.18% and -2.51% for the quarter and for the year, respectively. High yield corporate bonds fared worse in the quarter, better on the year, with the Bloomberg Barclays Corporate High Yield Index returning -4.53% and -2.08%, respectively.
- The importance of taking taxes into consideration cannot be overstated. On a pretax basis, returns for US Treasury, Corporate and Municipal bonds were not that dissimilar during 2018. However, once adjusted for income taxes, the total return difference between municipal bonds and corporate bonds was over 6%, according to the ICE BofAML Indexes.
- In general, the US economy continued to report plenty of good news in the fourth quarter. Business surveys remained in expansion mode, retail sales were the highest in years, consumer and business confidence remained high, unemployment was still near historic lows, and wages continued to rise.
- However, signs of weakness began to emerge in US housing, autos and capital spending. And globally, manufacturing surveys in Germany and France reported contractionary conditions.

Bond Market Snapshot

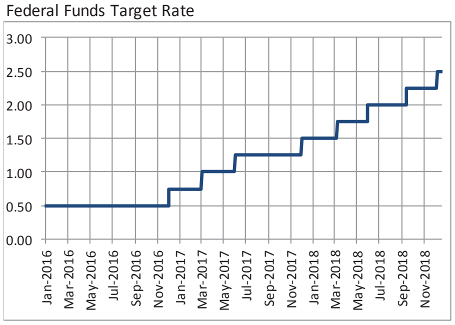
As of 12/31/2018

Index Yields & Returns	Yield-to-Worst	QTD Return	YTD Return
Bloomberg Barclays Municipal:			
Muncipal Index	2.69%	1.69%	1.28%
California Municipal Index	2.50%	1.45%	1.11%
New York Municipal Index	2.58%	1.73%	1.04%
Massachusetts Municipal Index	2.56%	1.88%	1.12%
Bloomberg Barclays Aggregate:			
Aggregate Index	3.28%	1.64%	0.01%
Government/Credit Index	3.23%	1.46%	-0.42%
Treasury Index	2.61%	2.57%	0.86%
Corporate Index	4.20%	-0.18%	-2.51%

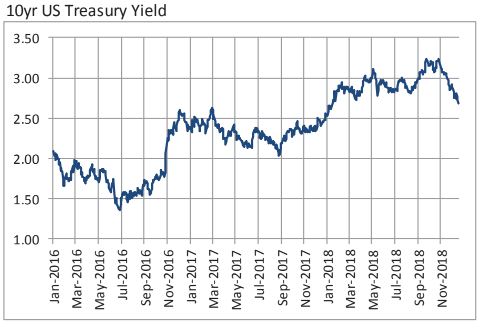
Muncipal Yields & Ratios	Yield	QTD Change	YTD Change
Bloomberg AAA Muni:			
2-year	1.78%	18 bps	24 bps
5-year	1.94%	27 bps	26 bps
10-year	2.30%	30 bps	31 bps
30-year	3.03%	18 bps	49 bps
Bloomberg Muni/Treasury %:			
2-year	72%	207 bps	-1036 bps
5-year	78%	248 bps	84 bps
10-year	86%	79 bps	271 bps
30-year	102%	80 bps	687 bps

Taxable Yields	Yield	QTD Change	YTD Change
US Treasury:			
2-year	2.49%	-33 bps	60 bps
5-year	2.51%	-44 bps	30 bps
10-year	2.68%	-38 bps	28 bps
30-year	3.01%	-19 bps	27 bps
Bloomberg US Corporate:			
High Grade	4.20%	14 bps	95 bps
AA-rated	3.37%	-11 bps	67 bps
BBB-rated	4.65%	26 bps	106 bps
High Yield	7.95%	171 bps	223 bps

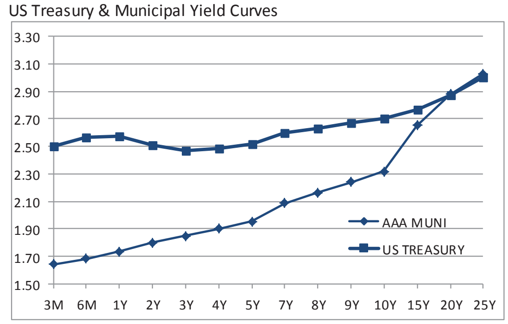
Federal Funds Target Rate



10yr US Treasury Yield



US Treasury & Municipal Yield Curves



Source: Bloomberg

- At the December meeting, as expected, the Federal Reserve raised the fed funds rate range for the fourth time in 2018 to 2.25% to 2.50%. Their dot plot median reflected two more rate hikes in 2019, reduced from three in the September forecast, and one more in 2020. The Fed continued to acknowledge US economic activity as "strong", but the equity markets interpreted the Fed's remarks as being too hawkish and unaware of the emerging signs of weakness in the global economy. Subsequently, global equity market's declined further into year end.
- Global central bank policy shifted to a net-tightening during the fourth quarter, as the ECB wound down their bond purchase program. The Bank of Japan remains the last major global central bank still conducting quantitative easing.
- On December 21st, the US federal government partially shut down over funding disagreements and a US border wall. The shutdown continues as of the writing of this publication. Back in 2011, Moody's addressed a government shutdown noting that "a brief shutdown of the US government lasting 30 days or less would have minimal-to-no credit impact on municipal debt. A protracted shutdown lasting more than 30 days could begin to negatively affect certain types of municipal bonds".

LMCG Composite Performance

LMCG's bond strategies were challenged most of the year similar to the broader fixed income indexes. The boost in returns during the fourth quarter was enough, however, to push our Core and Municipal strategies into slight positive territory for the year. Our higher quality, short-to-intermediate maturity approach to investing was the driver of our absolute positive returns for the year.

In our Core bond strategy, we began reducing our large overweight exposure to corporate credit in mid-2018, as well as shortening the average portfolio duration of the sector. This continued throughout the fourth quarter. Our large overweight in corporate credits benefited our strategy greatly for the past several years, but the debt binge by corporations of the last several years combined with higher interest rates made the risk/return profile of corporate bonds look less and less compelling to us. Credit fundamentals had been deteriorating for some time, but spreads started to widen in mid-2018. Our goal was to become more defensive and thus we increased our allocation to US treasuries to the highest level in years. These shifts helped our core bond strategy preserve clients' invested capital and maintain pace with the US treasury dominated benchmark index.

In our Municipal bond strategy, the Tax Cut and Jobs Act of 2017 impacted our strategy in 2018, causing us to shelter a higher percentage of client's bond income from taxes. As high tax paying investors face fewer possible deductions due to tax reform, our goal has been to increase the allocation to in-state municipals, especially for those clients residing in higher tax states. This focus has further improved our clients after tax total returns relative to broadly diversified mutual funds and benchmark indexes.

LMCG Core Bond Composite Performance

As of 12/31/2018, US Dollar

			Annualized			
	Q4 2018	1 Yr	3 Yrs	5 Yrs	10 Yrs	Since Inception*
LMCG Core Bond (Gross)	**0.9**	**0.6**	**3.0**	**3.0**	**4.3**	**4.5**
LMCG Core Bond (Net)	**0.7**	**-0.1**	**2.2**	**2.2**	**3.5**	**3.8**
Bloomberg Barclays Capital Interm U.S. Gov't/Credit Index	1.7	0.9	1.7	1.9	2.9	3.6

*Inception: June 2006.

Past performance is not indicative of future results. Investment advisory fees are described in Part 2A of LMCG's Form ADV. Gross performance returns presented above are net of transaction costs and include the reinvestment of dividends and other earnings but do not reflect the deduction of investment management fees which would reduce returns. Net returns are calculated by applying the investment management fee schedule noted in the composite disclosure to the gross returns of the accounts included in the composite. For information regarding the impact of investment management fees on performance, please refer to the attached composite disclosure. Shown as supplemental information only and complements the Core Bond composite disclosure attached.

LMCG Municipal Bond Composite Performance

As of 12/31/2018, US Dollar

			Annualized			
	Q4 2018	1 Yr	3 Yrs	5 Yrs	10 Yrs	Since Inception*
LMCG Municipal Bond (Gross)	**1.6**	**1.3**	**1.6**	**2.2**	**3.0**	**3.3**
LMCG Municipal Bond (Net)	**1.4**	**0.5**	**0.8**	**1.5**	**2.3**	**2.6**
Bloomberg Barclays Capital 1-10 Yr. Municipal Bond Index	1.6	1.7	1.7	2.4	3.3	3.6

*Inception: June 2006.

Past performance is not indicative of future results. Investment advisory fees are described in Part 2A of LMCG's Form ADV. Gross performance returns presented above are net of transaction costs and include the reinvestment of dividends and other earnings but do not reflect the deduction of investment management fees which would reduce returns. Net returns are calculated by applying the investment management fee schedule noted in the composite disclosure to the gross returns of the accounts included in the composite. For information regarding the impact of investment management fees on performance, please refer to the attached composite disclosure. Shown as supplemental information only and complements the Municipal Bond composite disclosure attached.

LMCG Outlook & Strategy

US stock market losses in the fourth quarter have occurred before economic data has shown significant deterioration; GDP, employment and inflation data in the US all remain fairly strong. Trade disputes, an earnings slowdown, and politics are impacting market returns and will likely continue to be central issues in 2019. However, we believe the Fed's policy decisions and the tightening of global monetary policy are the main drivers of a possible global economic slowdown in 2019. We believe that we are still in a longer-term rising interest rate environment, but we expect bond yields to move lower in the first quarter.

Our key investment themes for Q1 2019 are:

1. **US Economic Growth Is Decelerating**
   - Real GDP growth was 4.2% during the second quarter and 3.4% during the third quarter. According to the Atlanta Fed, estimates for the fourth quarter of 2018 are running at 2.8%.
   - The full impact of the Fed's four interest rate hikes in 2018 has yet to work its way through the economy. History has shown that interest rate hikes typically take about 12-18 months to fully work through the economy.
   - It is possible that the Fed is already too tight on policy; hence an economic slowdown may already be underway.

- Lower taxes as the result of the Tax Cut & Jobs Act combined with higher government spending boosted 2018's GDP data, but the impact from fiscal policy will be less positive in 2019.

2. **Inflation Is Decelerating**
   - The Core CPI and Core PCE reached 2.4% and 2.0% in July 2018, respectively, after having accelerated during the previous four quarters. Core inflation has since decelerated to 2.2% and 1.9%, respectively, according to the latest figures.
   - Inflation expectations, as measured by US 5-year break-even Treasury rates, are at their lowest level since 2016, which implies lower inflation ahead.
   - The fall in oil prices has contributed to the decline in inflation and inflation expectations. Oil supply is greater than demand, which also implies lower inflation ahead.
3. **Corporate Credit Fundamentals Are Deteriorating**
   - Consumer household debt is low relative to history, but the opposite is true for US companies; debt relative to equity and cash flow is close to the highest on record.
   - Corporate credit fundamentals are worse for BBB-rated companies than higher rated companies.
   - According to research by JP Morgan, 50% of US and European BBB-rated issuers have higher leverage than the average of their BB-rated counterparts.
4. **Municipal Credit Fundamentals Stable**
   - Since the Great Recession of 2008, most governments have stepped up to tackle their underfunded pension liabilities. Although there is still more repair work to be done, the median funded ratio among large public plans has held steady between 72-74% since 2011.
   - Only the weakest governments, e.g., Chicago and Illinois, are in crisis mode.
5. **Closer to the End of Fed Rate Hikes**
   - Bond market futures are pricing in zero rate hikes in 2019, believing that the Fed may already be too tight on policy. The market expects an end to, or pause in, any further policy tightening.
   - The real Fed Funds Rate (as measured by the Effective Fed Funds Rate minus year-over-year Core CPI) is now positive and the highest since 2008. The Fed's goal of normalization has largely been achieved, lessening the need to hike further.

At LMCG, we are positioning portfolios consistent with our themes above. We believe a neutral duration position relative to their respective benchmark index is warranted, and we will extend durations to pick up yield and seek higher returns should economic growth and inflation data continue to show weakness. We remain defensive on credit; as the economy slows and becomes stressed, debt liabilities become more burdensome for corporations and municipalities. Our goal is to implement a slight barbell yield curve strategy, particularly in our municipal strategy where longer municipal yields are cheap relative to treasuries. And, from a relative value perspective, municipal bonds remain the most attractive vs. treasuries and corporates for high tax paying investors.

CORE BOND COMPOSITE

Schedule of Annual Returns

January 1, 2008 through December 31, 2017

	Gross Returns (%)	Net Returns (%)	Benchmark Returns[1] (%)	Dispersion (bps)	Composite 3yr Ex Post Standard Deviation[2] (%)	Benchmark 3yr Ex Post Standard Deviation[2] (%)	Number of Accounts	Composite Assets at End of Period ($ millions)	Total Firm Assets ($ millions)
2017	4.0	3.2	2.1	64	1.9	2.1	23	41.5	7,551.3
2016	4.4	3.6	2.1	91	2.1	2.2	23	46.6	7,367.5
2015	1.2	0.4	1.1	81	2.3	2.1	31	41.2	6,786.9
2014	4.7	3.9	3.1	76	2.3	1.9	30	40.3	6,370.5
2013	-0.5	-1.3	-0.9	44	2.3	2.1	26	36.7	5,831.5
2012	5.9	5.1	3.9	62	2.2	2.2	20	33.4	4,402.6
2011	6.3	5.5	5.8	65	2.6	2.6	18	29.8	4,200.7
2010	7.0	6.3	5.9	121	3.8	4.0	17	28.5	4,412.7
2009	9.3	8.7	5.2	124	3.6	3.8	15	27.1	4,365.1
2008	3.2	2.5	5.1	294	-	-	12	40.7	2,527.4

[1] Benchmark returns have been obtained from an independent source and have not been examined by independent accountants.
[2] The three-year annualized standard deviation is not presented for December 31, 2008 because the composite did not have 36 monthly returns in that time period.

Core Bond Composite Portfolios included in this composite seek to earn consistent, above average returns while taking a low risk approach to fixed income asset management. The fixed income investment philosophy focuses on constructing high quality portfolios with an intermediate-term maturity structure. The portfolio invests in taxable fixed income bonds including but not limited to US Treasuries, Agency bonds and corporate bonds. All securities purchased are investment grade. The composite includes fully discretionary bond portfolios. For comparison purposes, the Barclays Intermediate Government/Credit Index is used. The minimum fixed income value requirement for inclusion in the composite is $750,000. The composite minimum prior to January 1, 2013, was $500,000. The inception date of the composite is June 1, 2006. The composite was created in October 2008.

Royal Bank of Canada (“RBC”) became LMCG’s indirect majority owner in November 2015 when RBC acquired City National Corporation (“CNC”). Effective January 1, 2015, Lee Munder Capital Group, LLC is known as LMCG Investments, LLC (“LMCG”), an investment adviser registered with the Securities and Exchange Commission. In July 2009, the firm was reorganized as an affiliate of CNC and took the name of Lee Munder Capital Group, LLC., prior to which it was known as Lee Munder Investments Ltd. (“LMIL”), which itself was an investment adviser registered with the Securities and Exchange Commission. The firm maintains a complete list and description of composites, which is available upon request.

Results are based on fully discretionary accounts under management, including those accounts no longer with the firm. The U.S. Dollar is the currency used to express performance. Performance results are presented gross and net of management fees and include the reinvestment of income. Net returns are calculated by applying the investment management fee schedule noted below to the gross returns of the accounts included in the composite. The annual composite dispersion presented is an asset weighted standard deviation calculated for the accounts in the composite the entire year. Policies for valuing portfolios, calculating performance, and preparing compliant presentations are available upon request.

The investment management fee schedule is as follows: Beginning January 1, 2011, 0.80% on the first $1 million and 0.77% on assets above $1 million. The prior fee schedule was 0.65% on the first $1 million and 0.62% on assets above $1 million. Actual investment advisory fees incurred by clients may vary

LMCG claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. LMCG has been independently verified for the periods October 1, 2000 through December 31, 2017. The verification report(s) is/are available upon request. Verification assesses whether (1) the firm has complied with all the composite construction requirements of the GIPS standards on a firm-wide basis and (2) the firm’s policies and procedures are designed to calculate and present performance in compliance with the GIPS standards. Verification does not ensure the accuracy of any specific composite presentation. Past performance is not indicative of future results.

MUNICIPAL BOND COMPOSITE

Schedule of Annual Returns

January 1, 2008 through December 31, 2017

	Gross Returns (%)	Net Returns (%)	Benchmark Returns[1] (%)	Dispersion (bps)	Composite 3yr Ex Post Standard Deviation[2] (%)	Benchmark 3yr Ex Post Standard Deviation[2] (%)	Number of Accounts	Composite Assets at End of Period ($ millions)	Total Firm Assets ($ millions)
2017	3.3	2.5	3.5	43	2.3	2.5	62	118.1	7,551.3
2016	0.1	-0.7	-0.1	37	2.3	2.4	57	115.1	7,367.5
2015	2.3	1.5	2.5	22	2.1	2.1	59	105.1	6,786.9
2014	4.3	3.5	4.7	43	2.1	2.2	57	102.4	6,370.5
2013	-0.3	-1.1	-0.3	72	2.3	2.5	51	91.6	5,831.5
2012	3.1	2.3	3.6	55	2.5	2.5	46	86.0	4,402.6
2011	6.8	6.0	7.6	52	3.3	3.2	42	73.0	4,200.7
2010	3.1	2.7	3.1	60	4.2	4.2	32	46.3	4,412.7
2009	6.2	5.8	7.2	132	3.9	3.9	18	18.5	4,365.1
2008	3.9	3.4	4.2	164	-	-	13	12.7	2,527.4

[1] Benchmark returns have been obtained from an independent source and have not been examined by independent accountants.
[2] The three-year annualized standard deviation is not presented for December 31, 2008 because the composite did not have 36 monthly returns in that time period.

Municipal Bond Composite Portfolios included in this composite seek to earn consistent, above average returns while taking a low risk approach to fixed income asset management. The fixed income investment philosophy focuses on constructing high quality portfolios with an intermediate-term maturity structure. Value is added through issue and sector selection. All securities purchased are investment grade. The composite includes fully discretionary, municipal bond portfolios. The minimum fixed income value requirement for inclusion in the composite is $750,000. Prior to January 1, 2012, the composite minimum was $500,000. For comparison purposes, the composite is measured against the Barclays 1-10yr Municipal Bond Index. The inception date of the composite is June 1, 2006. The composite was created in January 2008.

Royal Bank of Canada (“RBC”) became LMCG’s indirect majority owner in November 2015 when RBC acquired City National Corporation (“CNC”). Effective January 1, 2015, Lee Munder Capital Group, LLC is known as LMCG Investments, LLC (“LMCG”), an investment adviser registered with the Securities and Exchange Commission. In July 2009, the firm was reorganized as an affiliate of CNC and took the name of Lee Munder Capital Group, LLC., prior to which it was known as Lee Munder Investments Ltd. (“LMIL”), which itself was an investment adviser registered with the Securities and Exchange Commission. The firm maintains a complete list and description of composites, which is available upon request.

The investment management fee schedule is as follows: Beginning January 1, 2011, 0.80% on the first $1 million and 0.77% on assets above $1 million. The prior fee schedule was 0.40% on all assets. Actual investment advisory fees incurred by clients may vary.

Results are based on fully discretionary accounts under management, including those accounts no longer with the firm. Account performance is calculated on a total return basis including income and realized and unrealized gains and losses. Composite performance is presented gross and net of management fees. Net returns are calculated by applying the investment management fee schedule noted above to the gross returns of the accounts included in the composite. The annual composite dispersion presented is an asset weighted standard deviation calculated for the accounts in the composite the entire year. The U.S. Dollar is the currency used to express performance. Policies for valuing portfolios, calculating performance, and preparing compliant presentations are available upon request.

LMCG claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. LMCG has been independently verified for the periods October 1, 2000 through December 31, 2017. The verification report(s) is/are available upon request. Verification assesses whether (1) the firm has complied with all the composite construction requirements of the GIPS standards on a firm-wide basis and (2) the firm’s policies and procedures are designed to calculate and present performance in compliance with the GIPS standards. Verification does not ensure the accuracy of any specific composite presentation. Past performance is not indicative of future results.

Compliance Review #5640