

DURATION DECISION-MAKING: OPPORTUNITIES AND CONSIDERATIONS

SKITTISH ABOUT RATES?

Despite 10Yr Treasuries already more than doubling off their 2016 lows, many foresee continued upward pressure over time should the expansion remain intact. With the Federal Reserve determined to begin normalizing monetary policy, investors are grappling with the possibility of a secular rise in interest rates after a long, generally bullish Treasury cycle.

Given the price sensitivity of high-quality bonds as maturity is extended, advisors may be wary of maintaining duration exposure, let alone going farther out on the muni yield curve, particularly given its current relatively flat structure. While understandable, there are tradeoffs worthy of closer examination.

10 Year Treasury Yield (%)

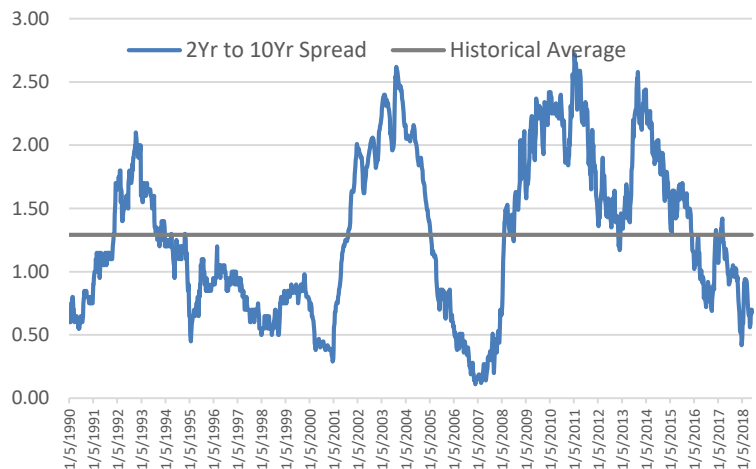


Source: Federal Reserve Bank of St. Louis

Such decisions must be made in an individualized asset allocation context, as client circumstances, goals, and risk tolerances differ. **Nonetheless, for investors able to tolerate short-term volatility, there are compelling reasons to maintain or extend duration during a period of gradually rising interest rates.**

While active management of fixed income credit quality, sector exposure, yield curve positioning and other elements of portfolio structure has considerable total return impact, **compound income also represents a key driver of long-term total return.**

2Yr to 10Yr Curve Steepness



Source: MMD and Appleton Partners, Inc.

WHAT ABOUT PRICE SHOCKS?

Time horizon is a foremost risk consideration, and high quality, liquid, shorter duration strategies may make a great deal of sense for investors funding near-term liabilities, or those otherwise unwilling to stomach price volatility. **Nonetheless, for investors intending to hold creditworthy bonds for longer periods, rising rate scenarios may not be as troubling as they appear at face value.**

A bond's duration is commonly seen as a measure of sensitivity to interest rate movements. It can also be thought of as the inverse of the expected return following a hypothetical 100 basis point parallel change in yields. As an example, assume a AAA-rated GO maturing in March of 2028 yields about 2.50% and has a duration of 7.9 years. All other things held equal, if rates were to rise 100 basis points tomorrow, the one-day return on that bond would be approximately -7.9%, the inverse of its duration. However, that doesn't tell the whole story.

First, because the current yield of the bond has now increased, if rates and other factors remained unchanged, over the next 12 months the bond should earn roughly 3.5%, 100 basis points more than it would have before the rate shock. Therefore, the forward one-year return would be roughly -4.7% in this scenario, about half the instantaneous rate shock loss.

However, for long-term investors, time can be a valuable ally. Assuming timely coupon payments, the future cash flows of the bond remain unchanged, and despite a decline in price, the expected return from purchase to maturity is not impacted.

While getting there may introduce price impact, higher yields can be a good thing for investors in the long run given the opportunity to reinvest a growing stream of income, assuming credit quality is preserved.

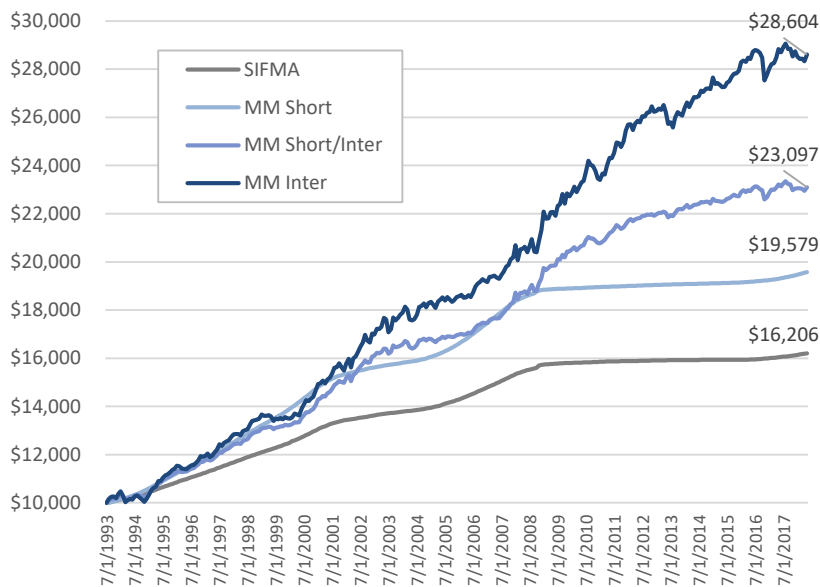
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TERM PREMIUM AND TOTAL RETURN

Absent a much feared but atypical inversion, the Treasury and municipal yield curves are generally upward sloping. **A term premium compensates investors for holding bonds farther out on the Treasury or tax-exempt maturity spectrum.** Despite a much flatter yield curve structure than has typically been the case over recent years, the current incremental yield pick-up as one goes further out on the curve is still meaningful.

Data measured over the past 25 years reveals a compelling case for extending slightly on the tax-exempt maturity spectrum, commensurate with an investor's willingness to tolerate greater price volatility. As the accompanying charts detail, **compounded incremental income is a key contributor to long-term annualized returns. Over every 5-year rolling period measured in the analysis, each of the three tax-exempt indices outperformed cash, while they also did so over more than 90% of the 3-year periods.** While this occurred during a period of generally declining rates, should US interest rates move higher, the ability to reinvest growing income streams may help offset the impact of short-term price shocks.

Growth of \$10,000: Cash vs. Various Municipal Maturities



Excess Return of Various Maturities vs Cash
(7/1/93 - 5/31/18)

	Cash	MM Short	MM Short/Int	MM Inter.
Avg. 3-yr annualized return	1.98%	3.61%	4.58%	5.14%
Min 3-yr excess return vs. cash	-	(0.76)%	(0.29)%	(0.44)%
Max. 3-yr excess return vs. cash	-	4.53%	6.46%	7.53%
% periods outperforming cash	-	91.7%	97.0%	98.5%
Avg. 5-yr annualized return	1.98%	3.65%	4.62%	5.16%
Min 5-yr excess return vs. cash	-	0.05%	0.38%	0.34%
Max 5-yr excess return vs. cash	-	3.18%	4.92%	5.90%
% periods outperformed cash	-	100%	100%	100%
Avg. annual standard deviation	0.45%	1.97%	3.44%	4.20%

Source: Bloomberg. The SIFMA Municipal Swap Index is a 7-day high grade market index comprised of tax-exempt Variable Rate Demand Note reset rates and is often seen as a proxy for tax-exempt cash equivalent yields. Municipal returns reflect the performance of the Bloomberg Barclays Managed Money Short, Short/Intermediate (1-10 Years) and Intermediate (1-17 years) indices and are expressed as cumulative return beginning on 7/1/93.

THE ASSET ALLOCATION VALUE OF MUNICIPALS

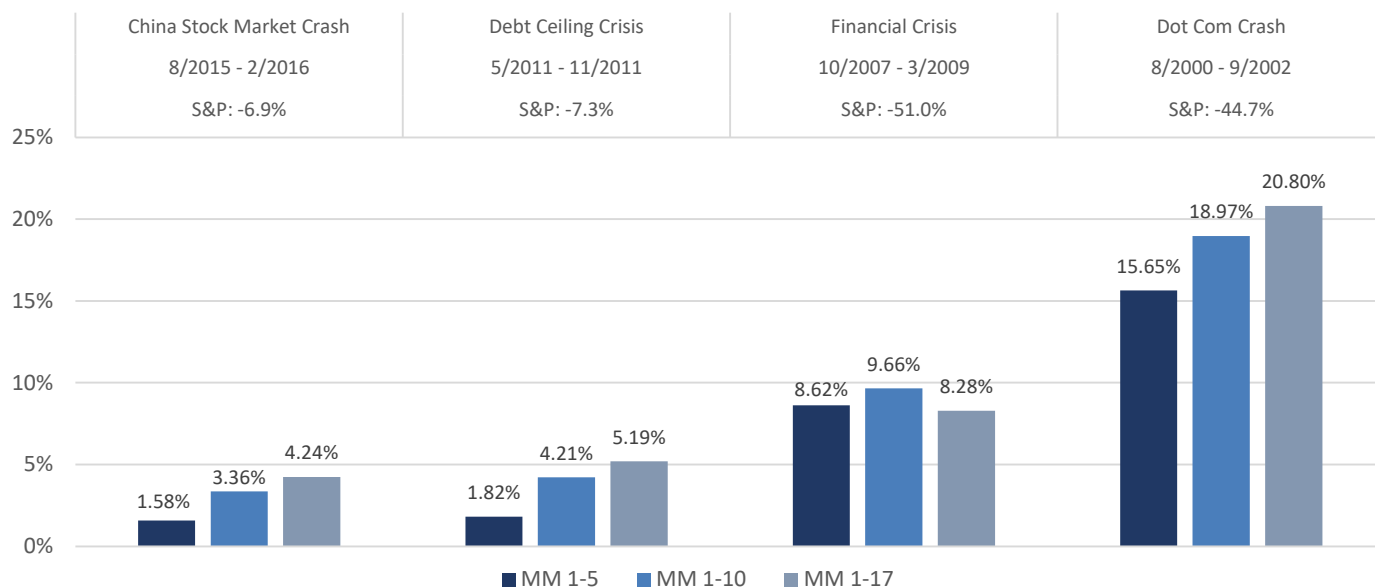
While the risk-return profile of individual strategies in isolation is important, most investors look at their investments in a broader context. Asset allocation efficiency is integral to helping investors achieve personal growth objectives while simultaneously managing risk across their entire portfolio of investments.

Despite a strong overall upward trend, there have been four major equity market corrections over the past 25 years. Although circumstances differ, municipal indices of various maturities produced positive performance in each case, the effect of which was generally greater the longer the maturity profile. What this data suggests is that municipal exposure may not only generate tax-advantaged income, but may also offer a modest hedge against equity risk, thereby potentially enhancing a client's overall risk-return profile.

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THE ASSET ALLOCATION VALUE OF MUNICIPALS

Municipal Performance in Equity Market Downturns



Source: Bloomberg, API. Indices are the Bloomberg Barclays Managed Money series ordered by average maturity; the Short (1-5 years), the Short/Inter (1-10 years), and the Intermediate (1-17 years).

We also looked at the 20 worst monthly periods for the S&P 500 since 1993 along with the return of various municipal indices over each of those periods (see appendix). **The data shows that not only have municipals performed well on a relative basis, but longer maturities historically outperformed shorter maturities, driven in large part by the term premium.**

PORTFOLIO STRATEGY OBSERVATIONS

While there are tradeoffs and risks associated with any fixed income strategy, a few points are worth emphasizing.

- **Credit quality is always of paramount importance**, as the impact of rating downgrades or other credit deterioration can far offset the excess return derived from longer curve positioning. In our view, enhancing yield should not be a product of imprudent credit risk.
- **A principal benefit to maintaining or even modestly extending maturity and duration lies in the associated yield pick-up.** Research has consistently demonstrated that the strongest predictor of future performance is starting yield level given the impact of compound reinvestment. As a frame of reference, our long muni composite had a 0.48% yield to worst differential relative to our intermediate composite and 0.66% relative to the short muni composite as of 5/31/18.
- **The municipal curve has historically been positively sloped and we do not expect that to change.** Despite geopolitical and policy risks, we feel recent economic data supports an expectation of solid, sustained GDP growth. We anticipate slight further Treasury yield curve steepening over the remainder of 2018 and feel the municipal curve will likely follow a similar path.
- **The downside to longer duration portfolios lies in greater potential price volatility**, particularly in secular rising rate environments. While this is a risk that must be accounted for, we do not anticipate a near-term rate shock, with the 10Yr Treasury having moved up from 2.40% at year-end 2017 to 2.84% as of June 27th. Signs of ex-US economic weakness, constrained inflation and wage growth, and an unsettling geopolitical and policy backdrop may act to constrain Treasury yields.
- **Nonetheless, modestly rising rates can have long-term benefits, most notably increased portfolio income.**
- **For investors for whom maintaining or moving a bit longer in maturity makes sense, doing so may also introduce risk efficiency benefits** when such exposure is part of a broader asset allocation strategy.

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APPENDIX

20 Worst S&P 500 Monthly Returns (1993 – 2018)

Monthly Return (%)	S&P 500	MM 1-5	MM 1-10	MM 1-17
10/31/2008	(16.80)	0.06	(0.12)	0.15
8/31/1998	(14.46)	1.01	1.42	1.62
9/30/2002	(10.87)	0.87	1.85	2.37
2/27/2009	(10.65)	(0.46)	(1.30)	(0.69)
2/28/2001	(9.12)	0.34	0.14	0.20
9/30/2008	(8.91)	(1.32)	(2.46)	(3.85)
6/30/2008	(8.43)	(0.64)	(1.06)	(1.10)
1/30/2009	(8.43)	2.21	3.57	3.92
9/28/2001	(8.08)	0.48	0.16	(0.16)
5/31/2010	(7.99)	0.48	0.92	0.97
11/30/2000	(7.88)	0.38	0.45	0.61
7/31/2002	(7.80)	0.84	1.21	1.41
11/28/2008	(7.18)	1.50	2.17	1.64
6/28/2002	(7.12)	0.90	1.19	1.28
9/30/2011	(7.03)	(0.27)	(0.08)	0.40
3/30/2001	(6.33)	0.71	0.83	0.88
8/31/2001	(6.26)	1.11	1.49	1.76
4/30/2002	(6.06)	1.67	2.43	2.49
8/31/2015	(6.03)	0.09	0.19	0.29
5/31/2012	(6.01)	0.20	0.44	0.66
Average of 20 worst monthly periods	(8.57)%	0.51%	0.67%	0.74%

Source: Bloomberg, API. Indices are the Bloomberg Barclays Managed Money series ordered by average maturity; the Short (1-5 years), the Short/Inter (1-10 years), and the Intermediate (1-17 years).