

Market Commentary

Independent Credit Research – Leveraged Finance – June 2016

STRATEGIES FOR INVESTING IN A RISING RATE ENVIRONMENT

Accurately calling interest rate moves has proved to be a difficult, and futile, task for investors over the past few years as we have seen wild moves and really no sustained direction. As we entered 2014, virtually everyone (except ourselves) expected rates to rise as the long awaited “taper” began. Yet, the opposite played out over the year with the 10-year Treasury rate falling from a high of 3.01% in the beginning of January to end 2014 at 2.17%. 2015 saw rates swing from a low of 1.68% early in the year, to a high of 2.5% in June as the expectations became stronger that the Fed would be raising rates. One rate hike happened and we closed out 2015 with rates right around the 2.3% level, only to fall to a low of under 1.6% in mid-2016.¹ The only aspect of rates that can be accurately predicted is volatility.

As we look forward, we know the Fed wants to raise rates, though the primary impetus to do so seems to be to have room to lower them should they need to later, rather than strong economic growth supporting the need to do so. The data for the “data dependent” Fed doesn’t clearly support a rate increase. While we are certainly not under the belief that a rapid rise in rates is on the horizon, for the sake of argument, let’s assume that rates do rise materially from here. What does that mean for the high yield market and the various “strategies” out there to deal with rising rates?

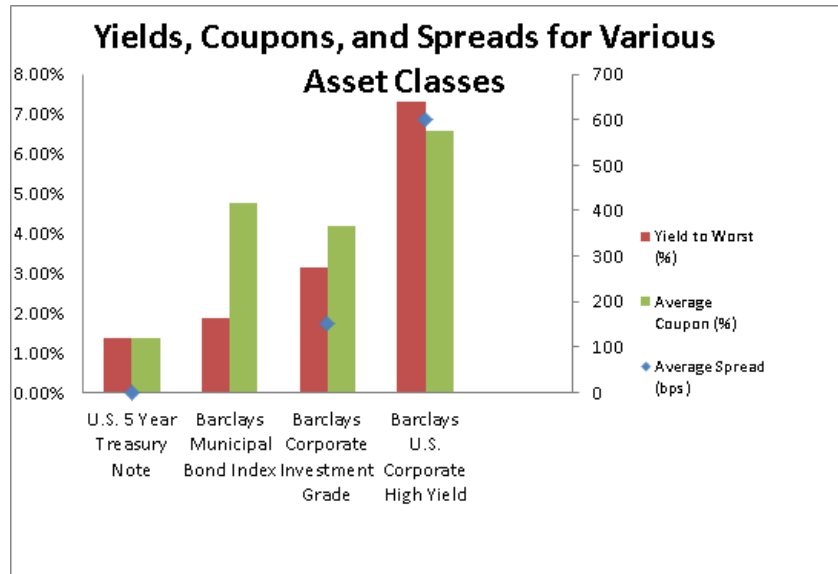
High Yield in a Rising Rate Environment

First let’s look at the high yield market and how it has traditionally responded to rate moves. Historically speaking, the high yield bond market has performed well in a rising rate environment.

Higher coupons and yields in the high yield space help cushion the impact of rising interest rates. High yield bonds, as the name would suggest, have traditionally offered among the highest coupons/yields of various fixed income instruments, corresponding to higher perceived risk. The following chart depicts the current yield-to-worst, coupon, and the spread over Treasuries for several fixed income asset classes.²

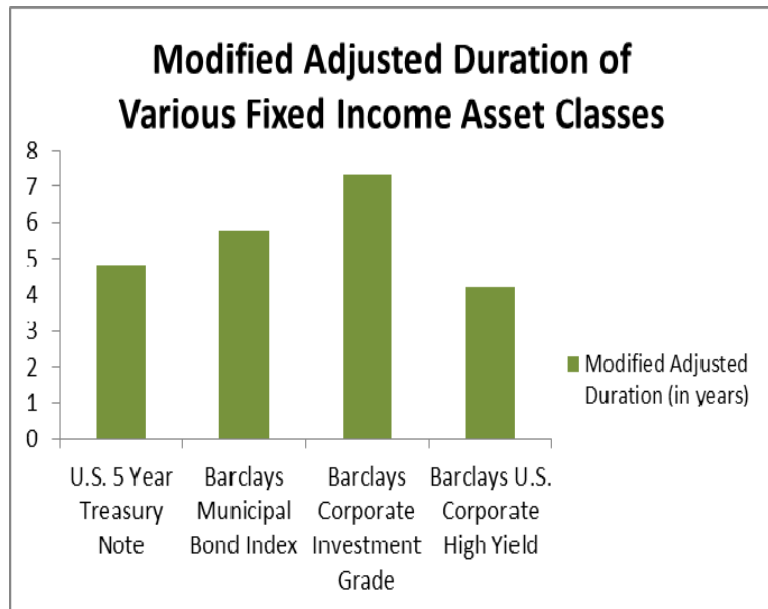
¹ Data sourced from the U.S. Department of Treasury website, Daily Treasury Yield Curve Rates, and data as of June 3, 2016.

² Barclays Capital U.S. High Yield Index covers the universe of fixed rate, non-investment grade debt (source Barclays Capital). U.S. 5 Year Treasury Note is the on-the-run Treasury (source Bloomberg). Barclays Corporate Investment Grade Index consists of publicly issued U.S. corporate and specified foreign debentures and secured notes that meet the specified maturity, liquidity, and the quality requirements (source Barclays Capital). Barclays Municipal Bond Index covers the long-term, tax-exempt bond market (source Barclays Capital). All data as of 5/31/16. The yield to worst is the lowest potential yield that can be received on a bond, without the issuer actually defaulting, and includes the



Let's think about this intuitively for a minute. If you own a bond with a yield of 3% and interest rates move up 1% that would obviously have a meaningful impact, as we are talking about a move equivalent to 33% of your total yield. However, if you instead have a starting yield of 7.0% on a bond and interest rates move that same 1%, you are looking at significantly less impact, at about a 14% change in yield. So the higher the starting yield, the less interest rate sensitivity.

High yield bonds have shorter durations than other asset classes in the fixed income space. Duration is a measure of sensitivity to changes in interest rates that incorporates the coupon, maturity date, and call features of a bond. The fact that high yield bonds are typically issued with five to ten year maturities and are generally callable after the first few years, as well as offer higher coupons, typically provides the high yield sector with a shorter duration, thus theoretically less interest rate sensitivity, versus other fixed income asset classes. We've profiled some duration comparisons to the right:³

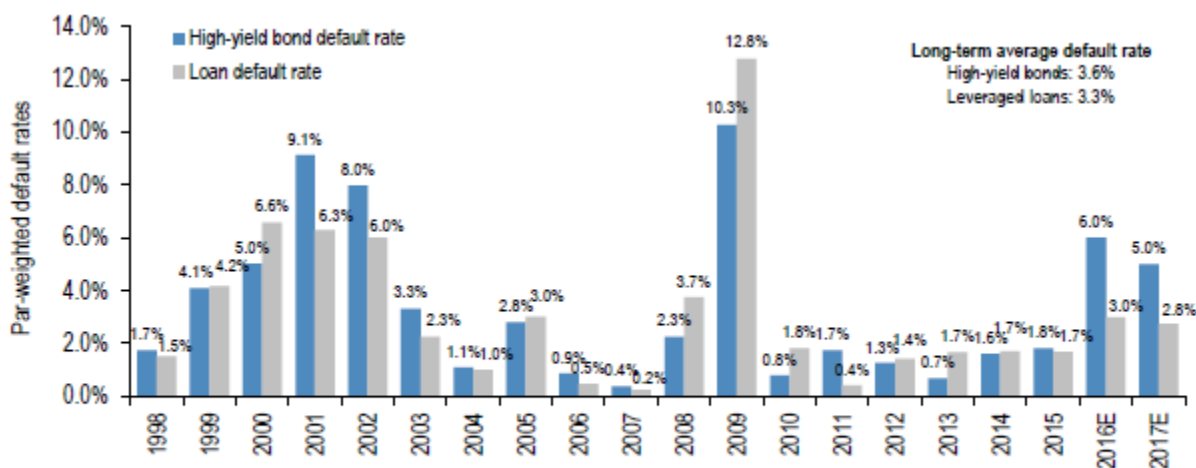


various prepayment options such as call or sinking fund. The spread is the spread to worst based on the yield to worst less the yield on comparable maturity Treasuries. The coupon is the annual interest rate on a bond.

³ Barclays Capital U.S. High Yield Index covers the universe of fixed rate, non-investment grade debt (source Barclays Capital). U.S. 5 Year Treasury Note is the on-the-run Treasury (source Bloomberg). Barclays Corporate Investment Grade Index consists of publicly issued U.S. corporate and specified foreign debentures and secured notes that meet the specified maturity, liquidity, and the quality requirements (source

The prices of high yield bonds have historically been much more linked to credit quality than to interest rates. Historically, interest rates are increasing during a strengthening economy and a strong economy is generally favorable for corporate credit and equities alike. Due to the nature of the high yield bond market, the major risk on the minds of investors is default risk (not interest rate risk), causing them to be much more concerned with the company's fundamentals and credit quality than interest rates. When the economy is expanding, profitability, financial strength, and credit metrics generally improve. So a stronger economy would undoubtedly be a positive from a credit perspective and would indicate lower default rates, meaning likely improved prospects for the high yield market.

Even in today's environment of minimal to no economic growth, we are still seeing solid fundamentals for most corporations and while total default rates are expected to materially increase over the next couple years, the vast majority of that is tied to commodity sectors (i.e., energy, metals, mining, etc.), while expectations for defaults in the broader high yield market (ex-commodities) remain well below average⁴:



Note: 2014 default rates exclude TXU's \$36.1bn default.
Source: J.P. Morgan.

High yield bonds are negatively correlated with Treasuries. This means that as Treasury prices fall as interest rates increase, high yield would theoretically experience the opposite change (increase) in pricing. Additionally, while high yield is still positively correlated to investment grade, it is a low correlation; yet, we see a stronger correlation between investment grade and Treasuries. As noted below, over the past 15 years, high-yield bonds and loans exhibit negative correlations to the 10-year Treasury bond of -0.21 and -0.37, respectively, versus a far higher positive correlation of +0.62 for high-grade bonds.⁵

Barclays Capital). Barclays Municipal Bond Index covers the long-term, tax-exempt bond market (source Barclays Capital). All data as of 5/15/15. The Modified Adjusted Duration is a measure of interest rate sensitivity based on the yield to maturity date.

⁴ Acciavatti, Peter D., Tony Linares, Nelson Jantzen, CFA, Rahul Sharma, and Chuanxin Li. "High Yield Default Monitor," J.P. Morgan North American High Yield and Leveraged Loan Research, June 1, 2016, p. 5. 2014 default rates exclude TXU.

⁵ Acciavatti, Peter, Tony Linares, Nelson R. Jantzen, CFA, Rahul Sharma, and Chuanxin Li. "2015 High Yield-Annual Review," J.P. Morgan North American High Yield Research, December 30, 2015, p. 230.

Risk and returns of various assets

Fifteen-year correlation ended November 30, 2015

	5-year Treasury	10-year Treasury	LB Aggregate Bond Index	JPMorgan JULI High-Grade Index	JPMorgan Domestic HY Index	S&P 500	Wilshire 5000	Russell 2000	JPMorgan Emerging Market Bond Index- Global Composite	Dow Jones World Emerging Market Stock Index	Gold	US Inflation
10-year Treasury	0.92											
LB Aggregate Bond Index	0.82	0.87										
JPMorgan JULI High-Grade Index	0.56	0.52	0.86									
JPMorgan US HY Index	-0.24	-0.21	0.18	0.48								
S&P 500	-0.39	-0.37	-0.10	0.15	0.66							
Wilshire 5000	-0.39	-0.37	-0.09	0.15	0.67	0.99						
Russell 2000	-0.39	-0.37	-0.13	0.12	0.66	0.88	0.91					
JPMorgan EMBI- Global Composite	0.15	0.21	0.50	0.55	0.68	0.52	0.47					
Dow Jones World EM Stock Index	0.29	-0.28	0.02	0.27	0.73	0.78	0.79	0.75	0.54			
Gold	0.25	0.23	0.28	0.27	0.13	0.04	0.05	0.07	0.33	0.25		
US Inflation	0.22	-0.28	-0.22	-0.22	0.15	0.04	0.05	0.05	0.04	0.10	0.05	
Leveraged loans	-0.17	-0.37	-0.02	0.25	0.84	0.51	0.52	0.51	0.45	0.55	0.04	0.33

Given these low or negative Treasury correlations versus other asset classes, especially the more interest rate sensitive asset classes such as investment grade, an allocation to high yield bonds may help improve portfolio diversification and potentially lower risk depending on the mix of assets. On the flip side, an allocation to investment grade not only provides you a much lower starting yield, but can result in significantly more interest rate sensitivity.

Historical Performance

Those are nice theories, but let's look at some hard data as to how high yield has actually performed in a rising rate environment. Since 1980, Treasury yields have increased (i.e., interest rates rose), in 16 of those years. In all but one of those 16 years, high yield has outperformed the investment grade market. The long-term numbers show that over those 16 years since 1980 where we saw Treasury yield increases (i.e., interest rates rose), high yield had an average return of 12.4% (or 9.3% if you exclude the massive performance in 2009). This compares to only a 4.3% average return (or 3.4% excluding 2009) for investment grade bonds over the same period.⁶

So the data is clear that high yield has historically not only provided investors with solid returns during periods of rising interest rates, but has also dramatically outperformed its investment grade counterpart.

Year	J.P. Morgan		Change in 5 Yr Treasury Yield (bps)
	J.P. Morgan High Yield Bond Index Return	J.P. Morgan Investment Grade Corp Bond Index Return	
1980	4.3%	0.5%	2.21
1981	10.4%	2.3%	1.38
1982	36.3%	35.5%	-3.88
1983	20.3%	9.3%	1.44
1984	9.4%	16.2%	-0.46
1985	28.7%	25.4%	-2.58
1986	15.6%	16.3%	-1.68
1987	6.5%	1.8%	1.59
1988	11.4%	9.8%	0.73
1989	0.4%	14.1%	-1.30
1990	-6.4%	7.4%	-0.15

⁶ High yield and investment grade data sourced from: Acciavatti, Peter Tony Linares, Nelson R. Jantzen, CFA, Rahul Sharma, and Chuanxin Li. "2008 High Yield-Annual Review," J.P. Morgan North American High Yield Research, December 2008, p. 113; "High-Yield Market Monitor," J.P. Morgan, January 4, 2016, p. 15. Treasury data sourced from Bloomberg (US Generic Govt 5 Yr). The J.P. Morgan High Yield bond index is designed to mirror the investible universe of US dollar high-yield corporate debt market, including domestic and international issues. The J.P. Morgan Investment Grade Corporate bond index represents the investment grade US dollar denominated corporate bond market, focusing on bullet maturities paying a non-zero coupon.

Short Duration

Part of the reason for the historical outperformance for high yield versus investment grade bonds can be attributed to the high yield market's shorter duration versus other fixed income asset classes. As noted above, duration is a measure of interest rate sensitivity (the percentage change in the price of a bond for a 100 basis point move in rates), so the lower the duration the less sensitive those bonds are to interest rate movements. Lower duration bonds would not eliminate the interest rate impact, just lessen it. Yet we see focusing on duration as a first order in the high yield bond market makes very little sense.

If you were to invest according to a "short duration" strategy in the high yield market, let's hypothetically say you could achieve a portfolio with a duration of 2.5 years, so a 100 bps change in rates over 6mos would mean that the price of your portfolio would theoretically decline by 2.5%. If your starting current yield on the portfolio was 7.0%, meaning you theoretically generate 3.5% of income over that 6mos, then you are looking at a theoretical net gain of 1.0% (3.5% - 2.5%) over the period of rising rates. However, if you can build a portfolio in the high yield bond and loan market investing according to both maximizing yield and considering duration, let's say you can build a portfolio with a duration of 3.0

years and a current yield of around 8.75%. In this case, your theoretical sensitivity to a 100bps movement over 6mos would be a price change of 3.0%, but you would be theoretically generating 4.375% of income over the 6mos, so your net theoretical gain would be 1.375%. If that 100bps interest rate movement is over a year instead of 6 months, that yield benefit gets even larger, putting you at a theoretical net gain of 4.5% for the hypothetical short duration portfolio versus a theoretical gain of 5.75% for the higher yielding portfolio.⁷ And of courses, if rates don't move or even decline from current levels, then the higher yielding portfolio would not only benefit from the higher starting yield but a theoretical positive price movement per the duration calculation.

Below we graphically depict some scenarios that show how duration and yield interplay during periods of rising rates for a variety of scenarios.⁸

Year	J.P. Morgan High Yield Bond Index Return	J.P. Morgan Investment Grade Corp Bond Index Return	Change in 5 Yr Treasury Yield (bps)
1991	43.8%	18.2%	-1.75
1992	16.7%	9.1%	0.07
1993	18.9%	12.4%	-0.79
1994	-1.6%	-3.3%	2.62
1995	19.6%	21.2%	-2.45
1996	13.0%	3.7%	0.83
1997	12.5%	10.4%	-0.50
1998	1.0%	8.7%	-1.17
1999	3.4%	-1.9%	1.80
2000	-6.0%	9.9%	-1.37
2001	6.7%	10.7%	-0.67
2002	3.2%	10.7%	-1.57
2003	26.8%	8.2%	0.51
2004	11.1%	6.0%	0.36
2005	2.4%	1.4%	0.74
2006	11.6%	3.8%	0.34
2007	2.6%	6.0%	-1.25
2008	-26.6%	0.5%	-1.89
2009	58.2%	18.5%	1.13
2010	14.7%	9.3%	-0.67
2011	7.0%	8.7%	-1.17
2012	15.4%	9.9%	-0.11
2013	8.2%	-0.8%	1.03
2014	2.2%	7.8%	-0.10
2015	-5.0%	0.4%	0.11

⁷ The duration and price movement relationships are approximates and calculations are provided for illustration only. These calculations assume that credit spreads remain constant and do not factor in any fees or expenses or changes in price movements for other reasons, including security fundamentals, etc. Actual results may be materially different.

⁸ The duration and price movement relationships are approximates and calculations are provided for illustration only. These calculations assume that credit spreads remain constant and do not factor in any fees or expenses or changes in price movements for other reasons, including security fundamentals, etc. Actual results may be materially different. Barclays High Yield Index as of 5/31/16, with "duration" based on the Macaulay duration to worst and "yield" based on a current yield assumption of provided coupon divided by provided price.

	Portfolio Duration (years)	Portfolio Yield (%)	10yr Treasury Shift by 100bps over 6mos			10yr Treasury Shift by 100bps over 1 year		
			Percentage Change in Portfolio Price	Yield Generated Over Period	Net Yield (%)	Percentage Change in Portfolio Price	Yield Generated Over Period	Net Yield (%)
BARCLAYS HIGH YIELD INDEX	4.2	7.50	-4.20	3.75	-0.45	-4.20	7.50	3.30
HIGH YIELD EXAMPLE 1	3.0	8.75	-3.00	4.38	1.38	-3.00	8.75	5.75
HIGH YIELD EXAMPLE 2	2.5	7.00	-2.50	3.50	1.00	-2.50	7.00	4.50
HIGH YIELD EXAMPLE 3	4.0	6.50	-4.00	3.25	-0.75	-4.00	6.50	2.50

So we see this as compelling evidence that investing purely according to a short duration strategy and not factoring in yield is not necessarily the wisest way to approach this environment. At the end of the day, yield matters. A higher yield can go a long way in making up for relatively small differences in duration. Thus we believe there are benefits to having the flexibility to build a portfolio that not only maximizes yield but also lowers duration as not only a better way to address interest rate risk, but can also provide less interest rate sensitivity relative to the broader high yield market and other products without this same flexibility. Furthermore, even if rates do rise, it very well can take longer than many expect as we have seen over the last year, making the argument for the higher yielding portfolio versus the purely short duration portfolio even stronger.

Hedged High Yield: Long High Yield, Short Treasuries

Another strategy within the high yield market that we have seen emerge over the past couple years has been “hedged high yield.” The gist of the strategy here is to go long high yield bonds and short Treasuries. The basic premise is that the strategy will seek to hedge interest rate risk, with any bond pricing decline due to rising rates being offset with the short in Treasuries. At face value this makes sense, as the adage in fixed income is that prices and yields/rates move in opposite directions, so as interest rates increase, prices decline. However, the problem is that this historically hasn’t played out in the high yield space.

As we noted above, high yield bonds have actually performed very well when interest rates increase and Treasuries and high yield bonds actually have a negative correlation. So while a short Treasury position may be appropriate to offset your interest rate risk in the investment grade world, it does not appear effective in the high yield space.

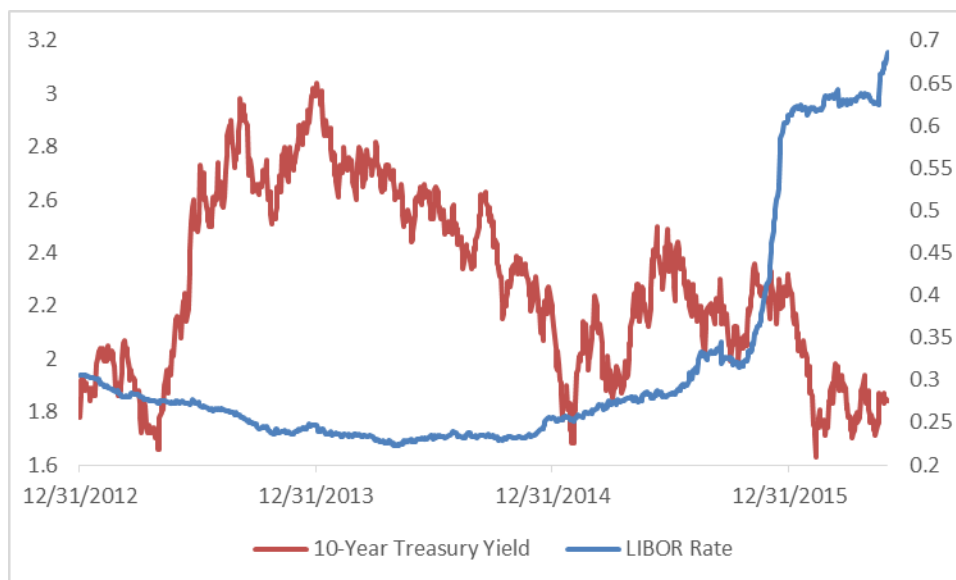
Further, we see another big problem with a combined portfolio of being long high yield bonds and short Treasuries: during times of systemic market disruptions we see a “flight to quality” trade, where investors abandon perceived “risky” assets such as high yield bonds and pile into “risk free” Treasuries. The early 2016 was a perfect example of this. So in a situation like this, you would not only be hit on a decline in your high yield bonds as investors sell them, but you would be hit on your short Treasury position as investor flock to these assets and bid up the price of Treasuries. So at face value the “hedge” sounds appealing, but it very well may be far from a hedge depending on the market environment.

Bank Loans

Finally, another strategy within the non-investment grade world that has gained popularity over the past several years is investing in floating rate loans. Because these are floating rate securities, there has been interest in this space by those concerned about higher rates. At face value this seems like a “no brainer” trade, and many have embraced it as such, but the actual numbers tell a bit of a different story. For instance, in 2013, the last annual period in which we saw a meaningful increase in US Treasury rates, floating rate loans returned 5.3% versus 8.2% for high yield bonds.⁹ Even with the 10-year Treasury yield increasing by over 1.2% and the 5-year Treasury increasing over 1.0% (both over 50% from the beginning of year yield)¹⁰ in 2013, the high yield market, helped by higher initial starting yields, still outperformed the loan market. It would seem that if floating rate loans are really the answer to rising rates, we would have seen a better return, especially given the massive inflows into the asset class at the time.

The first consideration when investing in the loan market must be an understanding of to what the “floating” rate is tied. Bank loans are generally based on short-term LIBOR rates, which doesn’t tie very closely to longer term 5- and 10-year Treasury rates, the more relevant rates for high yield bond investors. For instance we have seen the 10-year Treasury rate move down over 75bps over the past year¹¹, while LIBOR rates have more than doubled, moving up 40bps over the past year.¹²

LIBOR RATES (data as of 5/31/16)	Today	1 Month Ago	1 Year Ago	2 Years Ago
3 Month LIBOR Rate	0.69	0.64	0.28	0.23



⁹ Acciavatti, Peter, Tony Linares, Nelson Jantzen, CFA, Rahul Sharma, and Chuanxin Li. “Leverage Loan Market Monitor,” J.P. Morgan North American High Yield and Leveraged Loan Research, January 2, 2014, p. 1.

¹⁰ Data sourced from the U.S. Department of Treasury website, Daily Treasury Yield Curve Rates, comparing 12/31/13 to 12/31/12.

¹¹ Data based on 10-year Treasury high of 2.5% on 6/10/15 versus a level of 1.71% as of 6/3/16. Data from U.S. Department of Treasury.

¹² Data as of 5/31/16, LIBOR data sourced from Bloomberg. Treasury data sourced from the U.S. Department of Treasury website, Daily Treasury Yield Curve and LIBOR data sourced from Bloomberg.

So again, while the 5- and 10-year rates are the more relevant rates for high yield bond investing, the chart above clearly shows that these rates here in the U.S. don't closely correspond to 3-month LIBOR rates and the two rates don't necessarily move in the same direction, as evidenced by the volatility we have seen in U.S. Treasury rates over the past three years, all the while LIBOR was flat until starting its spike upward a year ago. Additionally, it is important to keep in mind that many, if not most, floating rate bank loans have LIBOR floors, generally ranging from 1-1.5%. This means we would need to see a substantial rise in short-term LIBOR rates even beyond the increase we have already seen before there was any impact on the coupon paid on the loan. At the end of the day, a loan investor may be left with coupon income that is not at all increasing despite some interest rate moves by the Fed.

One additional note, the general perception seems to be that loans are always less risky than bonds. However the reality is that many companies have debt financing that consists entirely of loans and some of those loans are still part of capital structures that are very highly levered. Investors need to make sure they understand what they are purchasing in this space.

Summary and Conclusion

Instead of focusing purely on lower duration bonds, embracing a "hedged high yield" strategy, or seeking a broad loan allocation as the panacea to rising rates, we view a more balanced approach to yield-based investing. Active managers can choose the companies they feel offer the best yield potential for the given risk, be it in bond or loan land. This can include both bonds with higher yields and higher durations, mixed with lower duration bonds that still offer value. We view the loan market primarily as a way to expand the investment universe and opportunity set, granting investors access to companies that may not issue bonds and enabling them to take advantage of what they see as the best opportunity within a company's capital structure. The fact that these securities lower portfolio duration may or may not be beneficial depending upon future interest rate moves.

It seems that most have expected rates to increase for the past three years since "tapering" began; yet, over that time we have seen a huge decline in Treasury rates, with the 10-year nearly cut in half from its 2013 high. While the Federal Reserve sets the Federal Funds Rate, the rates of government yield curve is set by market supply and demand forces. There remains substantial demand from fixed income investors, particularly pension plans focused on liability driven investing (LDI) and retirees needing income, as well as global fixed income investors as we have much higher rates here in the US relative to the vast majority of developed economies throughout the world. We believe that these factors, along with a weak global economy, will serve to moderate any rate move. Again, it is also important to keep in mind that if and when "rates" do rise, we are talking about the Federal Funds Rate which we expect will primarily impact the short end of the yield curve, and much less so those 5-year to 10-year maturities that relate more to the high yield market.

When there is an eventual rate move, higher starting yields for the high yield market should help to cushion a portfolio from interest rate movements, and historically high yield bonds have actually performed well during periods of rising rates. And if rates don't rise, investors can still

be positioned to generate what we see as an attractive yield, especially relative to the currently very low yields in many other fixed income sectors, including government, investment grade, and municipal bonds. We believe that an active and balanced approach to yield-based investing, focusing on maximizing yield for the given credit and interest rate risk and taking advantage of various opportunities within a company's capital structure, all the while managing volatility, is the best way to be positioned for the current environment.

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