LPL RESEARCH
BOND MARKET PERSPECTIVES

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INTEREST RATE RISK

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KEY TAKEAWAYS

Amid fluctuations in interest rates, shorter-term fixed income may deliver lower price volatility than longer-term.

Proper diversification across various sectors remains a prudent strategy to manage interest rate risk.

Small allocations to lower-quality fixed income can also be additive for suitable investors.

Long-term investing allows total return to potentially work in the investor's favor: focus less on price volatility and more on total return.

Heading into October of this year, fixed income investors were searching for yield and not afraid to add duration (the price sensitivity of a bond to changes in interest rates) as the low global interest rate environment looked poised to continue. In November, this changed quickly as the U.S. election result shocked the markets. The increase in the 10-year Treasury yield shows this as yields rose 28% on a relative basis from a starting yield of 1.84% on November 8, 2016 to 2.35% on November 18, 2016. Coupled with improving economic data and the Federal Reserve (Fed) poised to raise interest rates in December 2016, investors are quickly reassessing their interest rate risk. Many investors are considering this an opportunity to shorten duration as well, which would reduce price sensitivity if rates move higher.

We are in agreement with this strategy, as we expect bond prices to soften in 2017 and yields to rise modestly, as described in our *Outlook 2017: Executive Summary*. As such, we continue to recommend portfolio positioning with a duration lower than the Barclays Aggregate, along with additional diversification across sectors, maturities, and credit ratings (for suitable investors) which may potentially help mitigate the impact of rising interest rates on investors' portfolios.

> High-yield bonds outperformed the broad bond market in all rising rate environments, while U.S. Treasuries have underperformed in all time periods, excluding 2013 and 2015.

An efficient way to determine proper positioning is to examine prior periods of rising rates and take stock of what has worked well (and what has not). Figure 1 reviews periods of rising interest rates over the past 22 years. As shown, the Barclays Aggregate, a proxy for the broad high-quality bond market, posted a negative total return in rising interest rate periods, confirming the adage that as rates move higher, high-quality bond prices move lower. The sectors can be compared with the broad bond market returns to determine relative outperformance or underperformance

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against the benchmark, in this case, the Barclays Aggregate. The performance review in Figure 1 results in three main takeaways for bond investors:

- The difference between credit risk and interest rate risk is a meaningful one of which investors should be keenly aware. In 1998 (highlighted in yellow), the Barclays Aggregate, which has exposure throughout the high-quality credit spectrum, outperformed U.S. Treasury bonds (which are only AAA-rated, the highest of all ratings) by 2.2%. Investors that allocated to longer-duration U.S. Treasuries in an attempt to avoid the volatility of rate increases that year, which are more impactful on Treasuries of shorter maturities, lost due to interest rate risk, as longer-term rate increases weakened prices significantly. The price of their longer, higher-quality bonds decreased more than that of the shorter duration, slightly lower-quality broad bond market benchmark.

1 PERFORMANCE OF ASSET CLASSES DURING PERIODS OF RISING RATES

Rising Rates Start Date	Rising Rates End Date	Length (Months)	10-Year Treasury Yield Change	Broad Bond Market Return (Barclays Agg)	Sector Performance				
					Treasury	MBS	Corporate	High-Yield	Municipal
9/30/93	11/30/94	14	2.5%	-3.5%	-4.3%	-1.5%	-4.9%	2.0%	-5.9%
1/31/96	8/30/96	7	1.4%	-1.8%	-2.4%	0.0%	-2.9%	3.2%	-0.3%
11/29/96	3/31/97	4	0.9%	-1.5%	-1.9%	-0.4%	-2.4%	1.8%	-0.7%
10/5/98	1/21/00	16	2.6%	-2.3%	-4.5%	1.5%	-3.8%	3.7%	-2.6%
11/7/01	4/1/02	5	1.2%	-2.4%	-4.8%	-0.5%	-2.8%	4.7%	-1.5%
6/13/03	9/3/03	3	1.5%	-4.5%	-6.5%	-1.7%	-6.0%	1.1%	-4.5%
3/16/04	6/14/04	3	1.2%	-4.3%	-5.2%	-3.0%	-5.4%	-1.9%	-4.6%
6/1/05	6/28/06	13	1.4%	-1.3%	-2.2%	-0.1%	-2.7%	5.5%	1.0%
3/5/07	6/12/07	3	0.8%	-1.8%	-2.0%	-1.4%	-2.9%	1.6%	-1.8%
3/17/08	6/16/08	3	1.0%	-2.2%	-4.5%	-2.3%	-1.1%	6.2%	1.0%
12/30/08	6/10/09	5	1.9%	-0.5%	-7.0%	1.5%	4.7%	32.2%	6.2%
11/30/09	4/5/10	4	0.8%	-0.5%	-2.3%	-0.6%	0.8%	8.3%	1.6%
10/8/10	2/8/11	4	1.3%	-3.1%	-4.7%	-1.7%	-3.4%	5.0%	-5.5%
9/22/11	10/27/11	1	0.7%	-1.7%	-2.8%	-1.1%	-1.1%	3.7%	-1.2%
1/31/12	3/19/12	2	0.6%	-1.2%	-2.5%	-0.2%	-0.9%	2.3%	-1.0%
7/24/12	9/14/12	2	0.5%	-0.7%	-1.8%	0.2%	-0.5%	4.0%	-0.4%
12/6/12	3/11/13	3	0.5%	-1.0%	-1.5%	-0.3%	-1.2%	3.2%	-1.1%
5/2/13	9/5/13	4	1.4%	-4.9%	-4.5%	-4.0%	-6.4%	-2.4%	-6.8%
4/17/15	6/26/15	2	0.6%	-2.8%	-2.6%	-1.6%	-4.2%	-0.7%	-1.2%
7/8/16	11/25/16	5	1.0%	-3.6%	-4.7%	-1.8%	-3.9%	3.7%	-4.5%
Average		5	1.2%	-2.3%	-3.6%	-1.0%	-2.6%	4.4%	-1.7%

Source: LPL Research, Bloomberg 11/28/16

Shaded periods were either just prior, or coincided with, Federal Reserve interest rate increases.

MBS – mortgage-backed securities.

All performance referenced is historical and is no guarantee of future results.

All indexes are unmanaged and cannot be invested into directly.

Indexes: Treasuries – Bloomberg Barclays US Agg Govt; MBS – Bloomberg Barclays US Aggregate Securitized; Corporate – Bloomberg Barclays US Aggregate; High-Yield – Bloomberg Barclays High Yield Index; Municipal – Bloomberg Barclays Municipal Bond Index.

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- Sector diversification can help to limit the impact of rising rates. In 2008, high-yield bonds outperformed the Barclays Aggregate index substantially, as added yield protection cushioned investors from interest rate volatility. High-yield bonds outperformed the broad bond market in all rising rate environments, while U.S. Treasuries have underperformed in all time periods, excluding 2013 and 2015.
- High-quality mortgage-backed securities (MBS), an asset class often overlooked by some fixed income investors, has performed well since 2012 in rising interest rate environments. This can be attributed mostly to the shorter duration of the sector. Importantly, MBS is not without its own unique risks. MBS has duration extension risk if rates move significantly higher: fewer homeowners refinance at higher rates, which could lead the duration of the sector to extend due to less refinancing than originally expected. Investors can be left with investments that have a longer maturity than expected, and are unable to reinvest at higher prevailing interest rates, which can weigh on the asset class.

KEEPING PERSPECTIVE

Even though bond prices fall as interest rates rise, investors should remain focused on long-term objectives. By focusing on total return rather than on short-term market price fluctuations, investors can avoid selling at inopportune moments due to emotion. Total return is the rate of return over time that is derived from interest income, plus or minus gains or losses on the price of the bond. As interest rates rise, the cash flows of the bond will eventually be reinvested at higher prevailing interest rates. Over a longer horizon, the investor

RISING RATE PROTECTION

Although interest rate risk is present in almost all bonds, it can be managed by buying shorter maturity bonds with higher coupons. Generally, the longer the maturity and the higher the bond's duration, the more sensitive the bond's price is to changes in interest rates. For example, a bond with a duration of five years will decline in price by 5% if all Treasury yields rise by 1%, all else being equal. The longer the duration of the bond, the higher the yield should be, as investors need to be compensated for the time it takes to regain their principal investment. Historically, despite greater sensivity to changes in short-term interest rates, short-term bonds perform relatively well in rising rate environments because they don't require investors to tie up their money for long, making reinvestment at higher rates possible.

Another factor is the bond coupon. For example, a Treasury bond paying a 2% coupon when interest rates increase to 3% will decline in price. If not, the bond will not compete with the higher-yielding bonds entering the market at the new prevailing interest rate. If the coupon was well above the 3% rate, then the bond is said to have coupon protection and would likely rise in price. This demonstrates that the higher the coupon is on the bond, the more defensive the bond is against rising rates. In other words, rates need to rise substantially before the market would require a significant discount in price to make the bond attractive.

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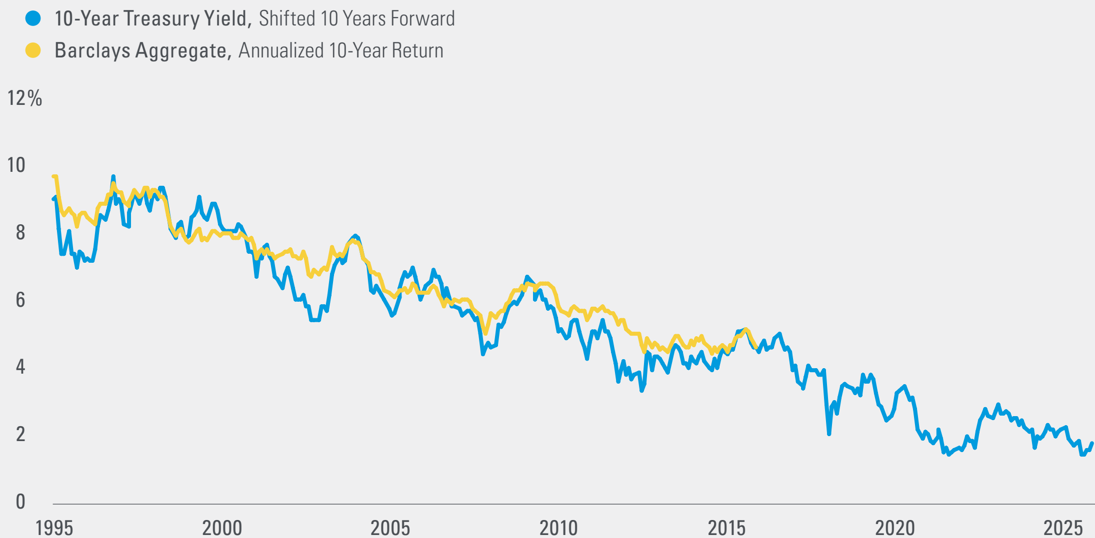
may chip away, or even overcome, price declines that occurred due to rising interest rates [Figure 2]. The Barclays Aggregate had negative returns in the rising interest rate periods of 1994 (-2.9%), 1999 (-0.8%), and 2013 (-2.0%). The broad market rebounded however, and the index went on to gain 18.5% in 1995, 11.6% in 2000, and 6.0% in 2014. Although we don't expect the same magnitude of total returns in the current environment due to the historically low level of interest rates, the takeaway remains critical: it pays to remain patient.

CONCLUSION

Although November 2016 was a painful reminder of the impact of rising interest rates on bonds, selloffs of that magnitude have been rare in fixed income markets. Nonetheless, it is important for investors to remain diligent in their asset allocation choices. Well diversified portfolios with a shorter duration profile with allocations across various sectors and asset classes may help to manage the risk associated with additional interest rate volatility. ■

2 YIELD IS THE DOMINANT DRIVER OF HIGH-QUALITY BOND RETURNS OVER THE LONG TERM



Source: LPL Research, Bloomberg 11/28/16

All Performance referenced is historical and no guarantee of future results.

The Barclays Aggregate Bond Index is an unmanaged index and cannot be invested into directly.

IMPORTANT DISCLOSURES

The opinions voiced in this material are for general information only and are not intended to provide specific advice or recommendations for any individual. To determine which investment(s) may be appropriate for you, consult your financial advisor prior to investing. All performance reference is historical and is no guarantee of future results. All indexes are unmanaged and cannot be invested into directly.

The economic forecasts set forth in the presentation may not develop as predicted and there can be no guarantee that strategies promoted will be successful.

Bonds are subject to market and interest rate risk if sold prior to maturity. Bond values and yields will decline as interest rates rise, and bonds are subject to availability and change in price.

Government bonds and Treasury bills are guaranteed by the U.S. government as to the timely payment of principal and interest and, if held to maturity, offer a fixed rate of return and fixed principal value. However, the value of fund shares is not guaranteed and will fluctuate.

Corporate bonds are considered higher risk than government bonds but normally offer a higher yield and are subject to market, interest rate, and credit risk as well as additional risks based on the quality of issuer coupon rate, price, yield, maturity, and redemption features.

High yield/junk bonds (grade BB or below) are not investment grade securities, and are subject to higher interest rate, credit, and liquidity risks than those graded BBB and above. They generally should be part of a diversified portfolio for sophisticated investors.

Municipal bonds are subject to availability and change in price. They are subject to market and interest rate risk if sold prior to maturity. Bond values will decline as interest rates rise. Interest income may be subject to the alternative minimum tax. Municipal bonds are federally tax-free but other state and local taxes may apply. If sold prior to maturity, capital gains tax could apply.

Mortgage-backed securities are subject to credit, default risk, prepayment risk (that acts much like call risk when you get your principal back sooner than the stated maturity), extension risk, the opposite of prepayment risk, and interest rate risk.

INDEX DEFINITIONS

The Barclays U.S. Aggregate Bond Index is a broad-based flagship benchmark that measures the investment-grade, U.S. dollar-denominated, fixed-rate taxable bond market. The index includes Treasuries, government-related and corporate securities, MBS (agency fixed-rate and hybrid ARM pass-throughs), ABS, and CMBS (agency and non-agency).

The Barclays US Aggregate: Government-Related Index is a benchmark that measures the governmentrelated component of the US Aggregate Index.

The Barclays Capital U.S. Aggregate Index is comprised of the U.S. investment-grade, fixed-rate bond market.

The Barclays U.S. Corporate High Yield Index covers the U.S. dollar-denominated, noninvestment grade, fixed-rate, taxable corporate bond market. Securities are classified as high yield if the middle rating of Moody's, Fitch, and S&P is Ba1/BB+/BB+ or below. The index excludes emerging markets (EM) debt. The index was created in 1986, with index history backfilled to January 1, 1983. The Barclays U.S. Corporate High Yield Index is part of the U.S. Universal and Global High Yield Indexes.

The Barclays Municipal Bond Index is a market capitalization-weighted index of investment-grade municipal bonds with maturities of at least one year. All indexes are unmanaged and include reinvested dividends. One cannot invest directly in an index. Past performance is no guarantee of future results.

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