

# Bond Market Perspectives



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## Assessing Interest Rate Risk

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#### Highlights

The prospect of rising interest rates continues to pose a risk to bond investors, but how a rise in interest rates impacts investors depends on multiple factors.

Intermediate-term bonds represent a trade-off between yield and interest rate risk across maturities.

Historically, short-term bonds are more insulated against rising interest rates, but investors may not be aware of the significantly different interest rate sensitivity between intermediate- and long-term bonds.

It seems there is no shortage of investors willing to forecast the impending doom for the bond market stemming from a reversal of the long decline in interest rates. Last week, the commissioner of the Securities and Exchange Commission (SEC) Daniel Gallagher stated that “financial armageddon” awaits municipal bond investors due to rising interest rates. Commissioner Gallagher tried to retract comments late in the week, saying he was merely trying to make bond investors aware of potential risks, but nonetheless joined a long list of doomsdayers who have used blanket statements and hyperbole in what seems to be the market participants’ incessant desire to spot the next “bubble.”

We have long advocated a defensive stance against interest rate risk and maintained that the prospect of rising interest rates will continue to pose a risk to bond investors. However, how much of a threat a rise in interest rates is to an investor depends on multiple factors. Sector allocation, maturity exposure, time horizon, and whether or not interest income is reinvested or simply spent, all influence potential total returns during a potential bear market for bonds.

#### Putting it in Perspective

A look back at prior periods of rising interest rates helps illustrate what a bond bear market looks like [Figure 1] and what investors may expect. Figure 1 lists all the periods of rising interest rates over the past 20 years, the magnitude of the rise in interest rates as measured by the 10-year Treasury yield increase over that period, and bond market and bond sector total returns during the rising rate period. The move higher in the 10-year Treasury yield, a key market benchmark, varied from 0.5% to as much as 2.6% over the various bond market pullbacks. Figure 1 shows three key takeaways:

- First, the figure illustrates bond sector exposure can help limit the impact of rising rates. Not all bond sectors react the same to rising interest rates. High-yield bonds for example, have generated gains, on average, when interest rates rise. Even after excluding outsized 2009 performance in Figure 1, high-yield bonds still averaged a positive 3.4% return and produced a loss on only one occasion. On average, U.S. Treasuries have borne the brunt of weakness, and so having exposure to other sectors of the fixed income market can help to blunt the impact of rising rates.
- Second, the single-digit declines, although serious, are not what many investors would consider bubble-worthy and certainly far less than



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the average equity bear market. The figure also shows peak-to-trough declines in total return for a particular period—meaning an investor would have bought when prices were at their highest, and yields lowest, and similarly sold when prices were at their lowest, and yields highest, to achieve the total returns shown. Buys or sells not occurring on those exact dates would have resulted in higher returns than those shown, either due to better pricing (either on the buy or sell side) or to the passage of time, as interest income offsets price declines. As a historical note, the worst holding period on record for bond investors occurred from June, 30, 1980 to September 30, 1981, when the Barclays Aggregate Bond Index declined by a total of 9.0%. The loss was erased, however, if an investor held until December 31, 1981, and highlights the importance of time horizon which we discuss later.

- Third, the longest periods (12 months or more) of rising rates all had one common factor: Federal Reserve (Fed) interest rate hikes. An extended bond bear market will therefore likely have to be accompanied by Fed interest rate increases—something that is not on the near-term horizon and unlikely before 2015. With the Fed sidelined, a key source of potential interest rate risk also remains sidelined for now. Periods of Fed rate hikes are highlighted in Figure 1.

## 1 Not All Segments of the Bond Market Behave the Same During Rising Interest Rate Environments

Rising Rates Start Date	Rising Rates End Date	Length (Months)	10-Year Treasury Yield Change	Broad Bond Market Return (Barclays Agg)	Sector Performance				
					Treasury	Mortgage-Backed Securities	Corporate	High-Yield	Municipal
9/30/1993	11/30/1994	14	2.5%	-3.5%	-4.3%	-1.5%	-4.9%	2.0%	-5.9%
1/31/1996	8/30/1996	7	1.4%	-1.8%	-2.4%	0.0%	-2.9%	3.2%	-0.3%
11/29/1996	3/31/1997	4	0.9%	-1.5%	-1.9%	-0.4%	-2.4%	1.8%	-0.7%
10/5/1998	1/21/2000	16	2.6%	-2.3%	-4.5%	1.5%	-3.8%	3.7%	-2.6%
11/7/2001	4/1/2002	5	1.2%	-2.4%	-4.8%	-0.5%	-2.8%	4.7%	-1.5%
6/13/2003	9/3/2003	3	1.5%	-4.5%	-6.5%	-1.7%	-6.0%	1.1%	-4.5%
3/16/2004	6/14/2004	3	1.2%	-4.3%	-5.2%	-3.0%	-5.4%	-1.9%	-4.6%
6/1/2005	6/28/2006	13	1.4%	-1.3%	-2.2%	-0.1%	-2.7%	5.5%	1.0%
3/5/2007	6/12/2007	3	0.8%	-1.8%	-2.0%	-1.4%	-2.9%	1.6%	-1.8%
3/17/2008	6/16/2008	3	1.0%	-2.2%	-4.5%	-2.3%	-1.1%	6.2%	1.0%
12/30/2008	6/10/2009	5	1.9%	-0.5%	-7.0%	1.5%	4.7%	32.2%	6.2%
11/30/2009	4/5/2010	4	0.8%	-0.5%	-2.3%	-0.6%	0.8%	8.3%	1.6%
10/8/2010	2/8/2011	4	1.3%	-3.1%	-4.7%	-1.7%	-3.4%	5.0%	-5.5%
9/22/2011	10/27/2011	1	0.7%	-1.7%	-2.8%	-1.1%	-1.1%	3.7%	-1.2%
1/31/2012	3/19/2012	2	0.6%	-1.2%	-2.5%	-0.2%	-0.9%	2.3%	-1.0%
7/24/2012	9/14/2012	2	0.5%	-0.7%	-1.8%	0.2%	-0.5%	4.0%	-0.4%
12/6/2012	3/11/2013	3	0.5%	-1.0%	-1.5%	-0.3%	-1.2%	3.2%	-1.1%
<b>Average</b>		<b>5</b>	<b>1.2%</b>	<b>-2.0%</b>	<b>-3.6%</b>	<b>-0.7%</b>	<b>-2.1%</b>	<b>5.1%</b>	<b>-1.3%</b>

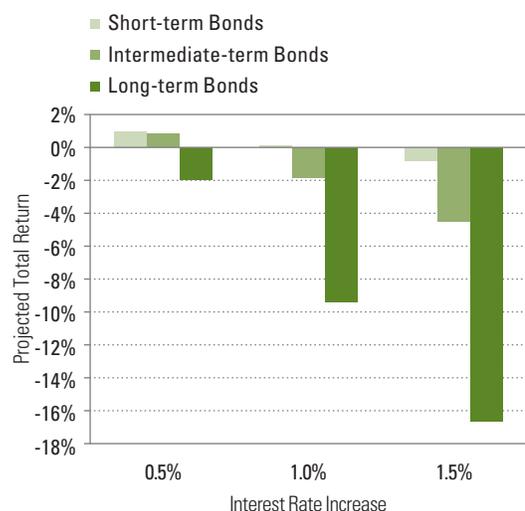
Source: Bloomberg, Barclays data, LPL Financial (September 1993 through March 2013) 04/23/13

Indexes referenced include: Barclays Aggregate Bond Index, Barclays US Treasury Index, Barclays US Corporate Index, Barclays US High-Yield Corporate Index, Barclays US MBS Index, Barclays Municipal Bond Index.

Shaded areas coincided with Fed interest rate increases. Average high-yield bond performance excluding the 32.2% of 2009 is 3.4%.



**2 Maturity, Not Sector, Exposure May Pose a Greater Risk**



Source: Barclays, LPL Financial 04/19/13

Note: total return projections assume parallel shift of the yield curve, no change in bond sector yield spreads (valuations), and no reinvestment of interest income. Projections based upon characteristics of Barclays Gov/Credit 1-3yr Index, Barclays Aggregate Bond Index, and Barclays Long Gov/Credit Index using current duration and coupon rate.

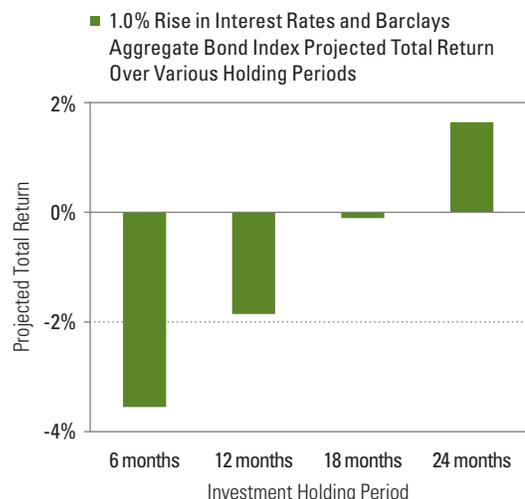
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**Maturity Exposure**

Maturity exposure, rather than sector exposure, may present a greater risk to bond investors. Historically, that short-term bonds are more insulated against rising interest rates, but investors may not be aware of the significantly different interest rate sensitivity between intermediate- and long-term bonds [Figure 2]. Figure 2 illustrates the projected total return of short-, intermediate-, and long-term bonds for varying increases in interest rates (from 0.5% to 1.5%) over a one-year holding period. Note the significantly greater losses of long-term bonds relative to both short- and intermediate-term bonds as represented by various bond indexes. We do not dismiss the losses on short- and intermediate-term bonds during a more significant 1.5% rise in interest rates; however, the popular media or market prognosticators often fail to differentiate maturity and simply refer to “bonds” when describing interest rate risks.

This is not to say that long-term bonds do not have a place in a portfolio. Long-term bonds can be part of diversified portfolio and may provide benefits during safe haven-buying. The Barclays Long Government/Credit Index featured in Figure 2 is up 5.5% since March 8, 2013 through April 21, 2013, as economic growth and European debt concerns resurfaced. In the municipal bond market, yield differential between long- and short-term bonds is greater when compared to the taxable bond market, meaning investors have the potential to be compensated more for extending maturity in the municipal bond market. Long-term bonds can play a role in investor portfolios, but it is important to be aware of potential risks.

**3 Investment Holding Period Is Very Important in Determining the Impact of Rising Rates on Bond Returns**



Source: Barclays, LPL Financial 04/19/13

Note: total return projections assume parallel shift of the yield curve, no change in bond sector yield spreads (valuations), and no reinvestment of interest income. Projections based upon characteristics of Barclays Aggregate Bond Index using current duration and coupon rate.

For illustration only. Not a guarantee of future performance.

**Time Is of the Essence**

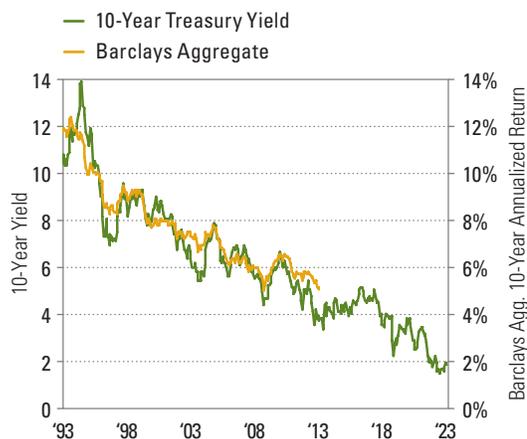
Time horizon, or investment holding period, is a key determinant of potential bond total returns but hardly ever discussed when the subject of bond bear markets is raised. Forecasts of bond losses are often cited as “bonds will decline by x% if interest rates go up by y%,” but fail to cite a specific holding period. Most forecasts unfortunately assume an instantaneous shift in interest rates, but interest rates do not jump by 0.5% or 1.0% in a single day. The holding period is very important since interest income, the primary driver of long-term bond returns, offsets price declines associated with rising interest rates. Short, quick jumps in interest rates can be damaging (as Figure 1 illustrates), but if the rise in interest rates occurs over a longer period of time [Figure 3], then interest income helps soften the blow on total returns. Note how bond total returns are positive despite a rise in interest rates if the 1.0% rise in interest rates takes two years to come to fruition.

So what can bond investors expect over the coming years? As we mentioned earlier, interest income is a primary driver of long-term bond returns and provides a guide for what returns may look like [Figure 4]. Figure 4, shifts the 10-year Treasury yield forward by 10 years and illustrates the close relationship of yield and future bond returns. The yield of the 10-year Treasury suggests that bond investors can expect a 2% average annualized rate of return over the coming 10-year horizon. Some bumps and periods of



We continue to favor intermediate-term bonds across the maturity spectrum, as they represent the best trade-off between yield and interest rate risk.

#### 4 Current Yields Suggest What Bond Investors May Expect in Coming Years



Source: Barclays, Bloomberg, LPL Financial 04/19/13

losses will likely occur along the way, but the relationship suggests a very low-return environment persisting for some time. After taking into account inflation, which is currently 1.5% annualized according to the Consumer Price Index (CPI), bond investors can expect negligible inflation adjusted returns over the long term. This reinforces the need to look at specific bond sectors and/or other yield-bearing investments.

We do not intend to dismiss the impact of potential losses from rising interest rates, especially a loss of any kind, from an investment such as bonds that many investors view as safe. However, interest rate risk is just one of several primary risks, along with liquidity risk and credit risk, that are always prevalent in the bond market. Credit risk, price declines associated with deteriorating credit quality or with a rise in default risk, is also of concern currently, given high valuations across the bond market and record-low yields for lower-rated bonds. Sluggish domestic economic growth and lingering risks from Europe could lead to price declines among lower-rated bonds should investors see credit risks rising. We continue to expect bond yields to be largely range-bound in 2013 but finish the year modestly higher. Under this relatively benign scenario we expect positive, but low-single-digit returns from high-quality bonds. We continue to favor intermediate-term bonds across the maturity spectrum, as they represent the best trade-off between yield and interest rate risk. ■

### Assessing Your Interest Rate Risk With Duration

Duration, which is different than maturity, is a measure of interest rate sensitivity and can be calculated for a single bond or a portfolio. The greater the duration, the greater the expected interest rate sensitivity and vice versa. As a general rule, duration roughly indicates how much a bond's price will change for a given change in interest rates. For example, a bond with a duration of five years will decline 5% in price for a 1% rise in interest rates (5 x 1% interest rate increase). However, duration is not a foolproof measure and addresses price changes only and does not take into account interest income.

Duration is less relevant for bonds with redemption features such as mortgage-backed securities and municipal bonds, since the likelihood, or lack, of an early redemption can impact price behavior of a bond. Duration is also less useful for bonds that involve some degree of credit risk, such as investment-grade corporate bonds. Rising interest rates in response to a stronger economy could help support investment-grade corporate bonds due to perceived improvements in credit quality thereby limiting price weakness. The rule of thumb duration calculation above will be less accurate in such a case. Finally, duration is not very useful for high-yield bonds since their prices are more impacted by credit quality changes and default risk rather than interest rate risk [Figure 1].



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#### 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 referenced 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.

Yield is the income return on an investment. This refers to the interest or dividends received from a security and is usually expressed annually as a percentage based on the investment's cost, its current market value or its face value.

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.

Bonds given an investment grade rating indicate a relatively low risk of default.

High-yield/junk bonds are not investment-grade securities, involve substantial risks, and generally should be part of the diversified portfolio of sophisticated investors.

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.

Intermediate bonds are characterized by a maturity that is set to occur in the next three to 10 years.

Municipal bonds are subject to availability, price, and to market and interest rate risk if sold prior to maturity. Bond values will decline as interest rate rise. Interest income may be subject to the alternative minimum tax. Federally tax free, but other state and local taxes may 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.

Treasuries are marketable, fixed-interest U.S. government debt securities. Treasury bonds make interest payments semi-annually, and the income that holders receive is only taxed at the federal level.

This information is not intended to be a substitute for specific individualized tax, legal or investment planning advice. We suggest that you discuss your specific tax issues with a qualified tax advisor.

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#### INDEX DESCRIPTIONS

The Barclays Aggregate Bond Index represents securities that are SEC-registered, taxable, and dollar denominated. The index covers the U.S. investment-grade fixed rate bond market, with index components for government and corporate securities, mortgage pass-through securities, and asset-backed securities.

The Barclays Treasury index is an unmanaged index of public debt obligations of the U.S. Treasury with a remaining maturity of one year or more. The index does not include t-bills (due to the maturity constraint), zero coupon bonds (Strips), or Treasury Inflation Protected Securities (TIPS).

The Barclays Long-Term Government/Corporate Bond Index - is an unmanaged index that includes fixed rate debt issues rated investment grade or higher by Moody's Investors Services, Standard & Poor's Corporation or Fitch Investor's Service, in order. Long-term indices include bonds with maturities of ten years or longer. Investors cannot invest directly in this index.

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

The Barclays 1-3 Year Government/Corporate Bond Index is a market value weighted performance benchmark for government and corporate fixed-rate debt issues with maturities between one and three years.

The Barclays Capital U.S. Corporate Index covers the universe of investment-grade rated corporate bonds issued by U.S. companies or specified foreign entities or corporations. Bonds must be U.S. dollar denominated, SEC registered, rated at Baa3/BBB- or better by at least two of the three major rating agencies (Moody's, S&P, Fitch) and have at least one-year remaining to maturity and at least \$250 million outstanding. Convertible and floating rate bonds are not included.



The Barclays Capital Long Government/Credit Index measures the investment return of all medium and larger public issues of U.S. Treasury, agency, investment-grade corporate, and investment-grade international dollar-denominated bonds with maturities longer than 10 years. The average maturity is approximately 20 years.

The Barclays U.S. Corporate High Yield Index covers the USD-denominated, non-investment 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 debt. The index was created in 1986, with index history backfilled to January 1, 1983. The U.S. Corporate High Yield Index is part of the U.S. Universal and Global High Yield Indices.

Barclays Capital U.S. MBS Index measures the performance of investment grade fixed-rate mortgage-backed pass-through securities of GNMA, FNMA, and FHLMC.

The Consumer Price Index (CPI) is a measure of the average change over time in the prices paid by urban consumers for a market basket of consumer goods and services.

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