The Sherman Ratio

A Different Way to Assess Your Portfolio

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DoubleLine®

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In today's world of zero interest rate policy, most investors are hard-pressed to find yield to supplement their investment portfolio with adequate income. There has been a drastic reduction of yield profiles across fixed income markets over the last few years. Yield provides income return, and offsets duration-based price movements by compensating investors and acting in the opposite direction of falling prices while reducing overall volatility. But depressed yields mean that fixed income now offers minimal compensation to investors for a mark-to-market loss of capital. Since the financial crises, government policy and direct issuance of Treasury securities has not only suppressed yields but has also lengthened duration within the Barclays U.S. Aggregate Index – the most common proxy for the U.S. investment grade bond market. Higher overall interest rate risk to an intermediate bond portfolio as measured by duration, or the sensitivity of the price of a bond to changes in interest rates, coupled with lower yields pose challenges to investors fully exposed to such concentrated risks. These risks are evident in index bond funds which are sought by investors to provide intermediate duration, high quality U.S. fixed income exposure.

Figure 1: Barclays U.S. Aggregate Index Yield Per Unit of Duration

January 31, 1976 to September 30, 2015

Source: DoubleLine Capital
Past performance is no guarantee of future results.
You cannot invest directly in an index.

As investors seek core bond funds to dampen volatility within their overall portfolio allocation the combination of duration and yield generally function as a diversifier to equity exposure. During times of uncertainty, a measure of how much stress an investment can endure can help investors make decisions and also identify potential areas of value. For bond investors, this means knowing how much a rise in rates can be sustained before a loss is incurred. For most fixed income investments held over the longer term, a small rise in interest rates may not translate to a loss, as interest income offsets price declines for a positive total return. At some point, however, if the rise in interest rates becomes severe enough, price declines overwhelm interest income. Knowing the specific point at which a rise in interest rates will translate into a loss is referred to as the "breakeven." Breakevens can help assess which maturities may be most attractive or help select sectors for investments. All else equal, a bond fund with the highest breakeven should endure the largest rate increase before total returns turn negative.

At DoubleLine we use the Sherman Ratio to calculate the breakeven. A term coined after DoubleLine Portfolio Manager Jeffrey Sherman, which is the calculation of yield per unit of duration. It is a tool

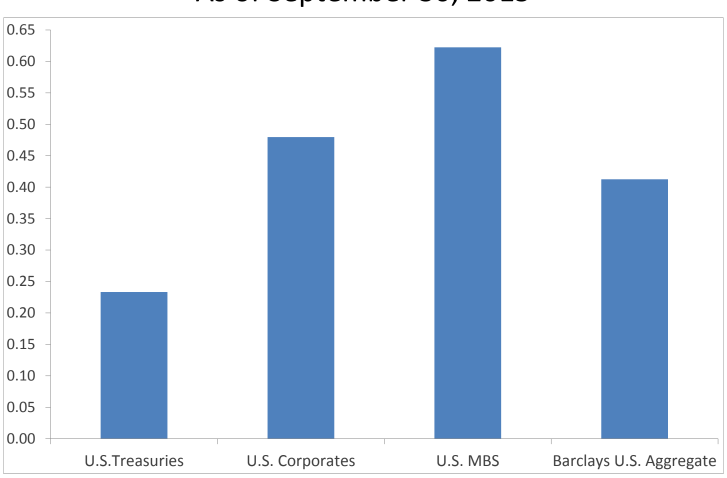
$$\text{Sherman Ratio} = \frac{\textit{Yield}}{\textit{Duration}}$$

investors can use to measure return expectations per unit of risk (in the same vein as the Sharpe ratio). Particularly helpful when comparing funds, the Sherman Ratio, the result of yield divided by duration, allows one to easily calculate what percentage increase in rates will offset a bond fund's yield. For example, it would take a 100 basis point rise in interest rates over twelve months to offset the yield of a fund whose Sherman ratio equals 1.0. The lower the Sherman Ratio, the less rates need to rise to offset one's yield.

Duration on the Barclays U.S. Aggregate Index increased from 3.7 years at the end of 2008 to 5.6 years as of September 30th, 2015. During the same period, yield-to-maturity fell from 4% at the end of 2008 to 2.31%. In other words, the index has a Sherman Ratio that has decreased from 1.1 to 0.41 over the past six years. As such, an index fund with a Sherman Ratio of 0.41 would lose more than 3% if rates rise 1% over a year. The recent sudden surge in the yield on German Bunds was a salutary reminder of this bond market risk. It demonstrated how a modest fall in the price of a very low-yielding bond can wipe out several years-worth of interest income.

Figure 2: Sherman Ratio

As of September 30, 2015



Source: DoubleLine Capital

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Active managers have the ability to alter sector weightings and employ investments outside the benchmark that can enhance diversification and return potential by increasing the Sherman Ratio. For example, the Barclays U.S. Mortgage Backed Securities Index sports a Sherman ratio of greater than two times that of the Barclays U.S. Treasury index. Actively managed bond funds can potentially mitigate some interest rate risk and preserve principal by allocating to sectors with higher yields and lower duration. As Leibowitz and Homer describe in Inside the Yield Book: The Classic That Created the Science of Bond Analysis, "our key finding is that bond returns tend to converge toward the initial yield over time. Over a sufficiently long holding period, the initial yield turns out to be a surprisingly accurate predictor of annualized returns, regardless of whether rates rise or fall." All else being equal, a bond portfolio with a shorter duration and a higher dividend yield would be more optimal versus a portfolio with longer duration and lower dividend yield.

The thirty-year secular decline in bond yields, central bank easing, and global disinflation has reduced bond yields to historic lows. The corollary of low yields has increased interest-rate sensitivity (i.e., longer duration) as can be seen in the Barclays U.S. Aggregate Bond Index. Given that the duration of the Barclays U.S. Aggregate Index ("the Index") at the time of writing this, its near all-time highs. Risk management in core bonds is essential. Further, one will find that the Index sits at historical lows in terms of its Sherman Ratio. As of September 30, 2015, the Index carried nearly twice as many years of duration versus its yield, meaning more interest rate sensitivity for little yield. Based on the Sherman Ratio, it would only take a 41 basis point rise in interest rates over a year to offset the index's yield return. Active fixed income management can improve a bond fund's Sherman Ratio when maximizing income relative to duration while practicing prudent risk management. We believe that active management can be a better solution by offering investors the diversification of a core fixed income while generating higher returns through active management.

Bibliography

Leibowitz, M. L., & Homer, S. (1972). Inside the Yield Book: The Classic That Created the Science of Bond Analysis. Prentice-Hall, Inc.

Definitions

Barclays U.S. Aggregate Index - An index that 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. These major sectors are subdivided into more specific indices that are calculated and reported on a regular basis.

Barclays U.S. Credit Index - The U.S. Credit component of the U.S. Government/Credit Index. This index consists of publically-issued U.S. corporate and specified foreign debentures and secured notes that meet the specified maturity, liquidity, and quality requirements. To qualify, bonds must be SEC-registered. The US Credit Index is the same as the former US Corporate Investment Grade Index.

Barclays U.S. MBS Index - An index that measures the performance of investment grade fixed-rate mortgage-backed pass-through securities of the Government-Sponsored Enterprises (GSEs): Ginnie Mae (GNMA), Fannie Mae (FNMA), and Freddie Mac (FHLMC).

Barclays U.S. Treasury Index - The U.S. Treasury component of the U.S. Government index. This index includes public obligations of the U.S. Treasury with a remaining maturity of one year or more.

One cannot invest directly in an index.

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