

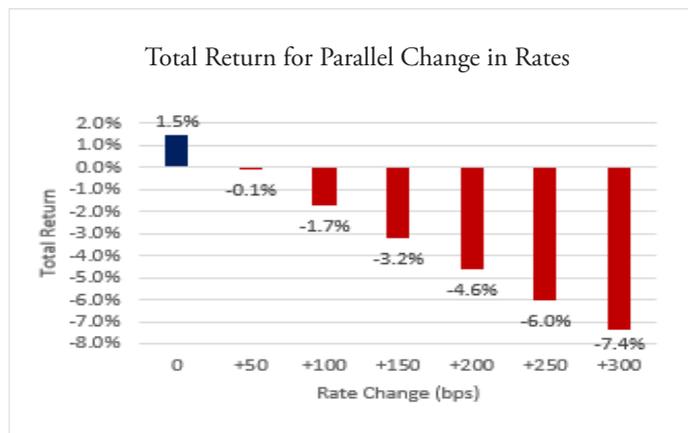
## REINHART FIXED INCOME PERSPECTIVES

### Risks and Rewards of Rising Rates - January 2021

#### SHOULD INVESTORS FEAR HIGHER RATES

As every fixed income investor knows, bond prices fall as rates rise. Obviously, falling prices reduce returns. In today's low yield environment, portfolio income offers little protection, meaning price changes dominate total return. However, fixed income investors with long time horizons should actually root for higher rates, despite the short term losses incurred.

#### HIGHER RATES REDUCE TOTAL RETURNS



While increasing interest rates lead to lower total returns in any given period, the amount of loss depends on the interest rate risk present in the portfolio and the severity of the change in rates. Chart 1 depicts the mathematical example of the twelve month total return of an intermediate maturity, Government/Credit portfolio (duration of approximately 4) given various instantaneous rate change. The chart shows that if nothing were to change, the expected total return of this example portfolio is very close to its yield to maturity, in this case 1.5%. However, all else equal, the greater the increase in rates, the lower the expected total return. For example, if rates were to instantaneously rise 300 basis points, the portfolio's expected twelve month total return is -7.4%. In a sector where positive returns have been the norm for much of the past 30+ years, a loss of 7.4% would likely qualify as a disastrous result.

#### ...BUT NOT FOREVER!

It is important to remember that the total return is a function of two forces, price changes and income. While higher rates negatively affect bond prices, they do come with a silver lining. Higher rates mean more income as bonds in a portfolio mature and are replaced with higher yielding securities. Chart 2 illustrates the growth of \$100 in two distinct scenarios. In the first scenario (no change in rates), the portfolio's value increases steadily, but slowly. The lack of price declines helps, but the portfolio is only growing by the amount of its small 1.5% yield to maturity. In the second scenario (instantaneous rate increase of 300 basis points), the 7.4% loss in year one is evident, but is offset in future years by a much higher portfolio yield. By the end of year 4, the two scenarios have returned roughly the same amount. By the end of year 10, the portfolio which experienced the negative price shock will have returned more than double the portfolio which did not. Over longer time horizons, return from income dominates price changes caused by higher rates.



---

## DISCLOSURES

“Madison” and/or “Madison Investments” is the unifying tradename of Madison Investment Holdings, Inc., Madison Asset Management, LLC (“MAM”), and Madison Investment Advisors, LLC (“MIA”), which also includes the Madison Scottsdale office. MAM and MIA are registered as investment advisers with the U.S. Securities and Exchange Commission. Madison Funds are distributed by MFD Distributor, LLC. MFD Distributor, LLC is registered with the U.S. Securities and Exchange Commission as a broker-dealer and is a member firm of the Financial Industry Regulatory Authority. The home office for each firm listed above is 550 Science Drive, Madison, WI 53711. Madison’s toll-free number is 800-767-0300.

Any performance data shown represents past performance. Past performance is no guarantee of future results.

Non-deposit investment products are not federally insured, involve investment risk, may lose value and are not obligations of, or guaranteed by, any financial institution. Investment returns and principal value will fluctuate.

This report is for informational purposes only and is not intended as an offer or solicitation with respect to the purchase or sale of any security.

The charts and information above are mathematical examples only and do not include fees or expenses and do not represent performance of any Madison investment.

Bonds are subject to certain risks including interest-rate risk, credit risk and inflation risk. As interest rates rise, the prices of bonds fall. Long-term bonds are more exposed to interest-rate risk than short-term bonds. In a low-interest environment, there may be less opportunity for price appreciation.

