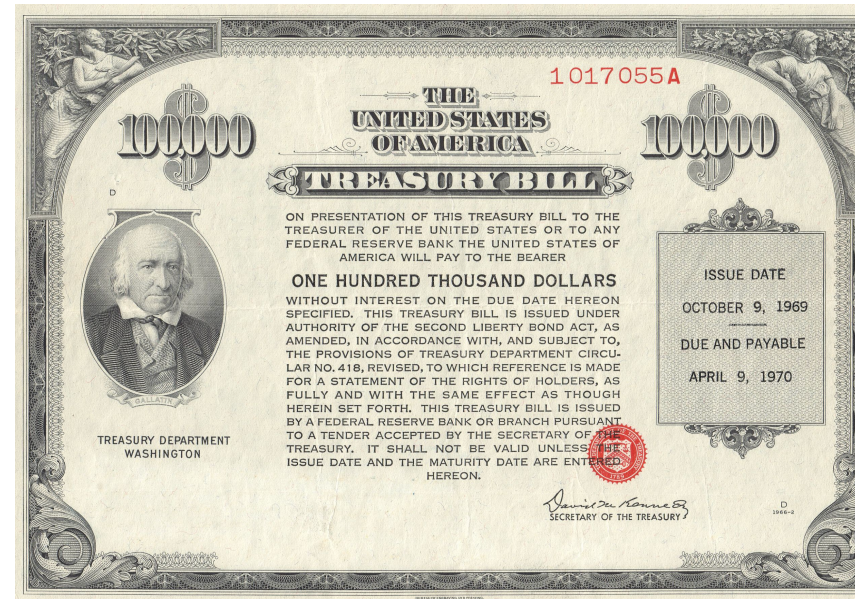


# The Asymmetry of Bond Returns



**“When most people think about the future, they ignore that the future is a distribution of possibilities.”**

~ Howard Marks, Oaktree Capital

ONE DAY  
IN JULY

ONE DAY  
IN JULY

[www.onedayinjuly.com](http://www.onedayinjuly.com)

One Day In July LLC is an SEC-registered investment advisor. Registration does not imply a certain level of skill or training. One Day In July LLC does not guarantee actual returns or losses. This content is for educational purposes only and is not investment advice. Individual circumstances may vary.

Generally, bond prices and yields have an inverse relationship and the longer a bond's duration, the more sensitive the bond's price is to changes in yield.

It is difficult, if not impossible, to predict the direction and size of future interest rate moves with any degree of certainty, but it may help to know that most bonds tend to have asymmetric forward-looking returns, particularly longer duration bonds.

This means that the impact to bond prices will vary in magnitude depending on which direction the bond yields move, even if yields change by the same amount.

For example, if the yields of the underlying holdings in a long-duration bond fund such as TLT **rise** 1%, the investment would **lose** an estimated 11.11% over the next year.

However, if underlying yields **dropped** by 1%, the position would **gain** an estimated 23.18% in that same fund. This is a function of what is called "convexity" in bonds.

The expected change ("Δ") in the price of a bond (or bond ETF) can be estimated using the following equation:

$$\Delta \text{ Bond Price (\%)} = (-\text{Modified Duration} * \Delta \text{yield}) + (1/2 * \text{Convexity} * \Delta \text{yield}^2)$$

## Estimated Annual Total Return of Bond ETFs Based on Changes in Bond Yields

		Annual Total Return of Bond ETF		
		IEI 3-7 Year Treasury Bond ETF	IEF 7-10 Year Treasury Bond ETF	TLT 20+ Year Treasury Bond ETF
Change in Bond Yield	Dividend Yield	4.09%	4.03%	4.13%
	↑ 3%	-8.03%	-15.87%	-30.18%
	↑ 2%	-4.22%	-9.73%	-22.55%
	↑ 1%	-0.18%	-3.10%	-11.11%
	↑ 0.5%	1.93%	0.41%	-3.97%
	↓ 0.5%	6.31%	7.78%	13.18%
	↓ 1%	8.58%	11.65%	23.18%
	↓ 2%	13.29%	19.76%	46.03%
	↓ 3%	18.23%	28.37%	72.69%

Dividend Yield is the SEC 30-day bond yield as of 12/26/23.