

The Surprising Benefits of Rising Interest Rates

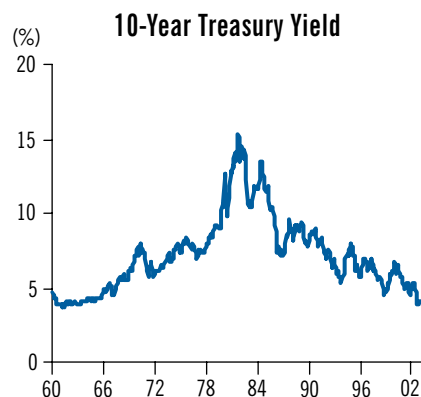
Income-seeking bond investors should welcome higher rates

In 1996 we published our research into the effects of rising interest rates on bond portfolios, concluding that rising rates may actually be a boon to bondholders.* In the current environment, an eventual rise in rates appears likely, so we've revisited this subject with new research. Should bondholders fear rising rates?

FEAR ON THE HORIZON

Over the past two years, investors have seen interest rates drop to their lowest levels in some 40 years, continuing a decline from their historical highs in the early

Where will interest rates go from their historical lows?



Through February 28, 2003
Source: Federal Reserve Board

Eighties (*display*). The assumption that rates must soon rise has many bondholders concerned, because when interest rates rise, prices fall for the bonds they already own. (After all, these bonds' interest payments are lower than those from new bonds of the same maturity and quality.) These price declines occur quickly, beginning on the very day interest rates change. And the longer the bond maturity, the more severe the price decline.

For example, if interest rates increase one percentage point a year for two years from where they are today, long-term bond prices would decline about 25%, six-year bonds would fall about 10% and two-year bonds roughly 4%. A bondholder who sold his bond portfolio in the face of these declines would lock in the loss. So isn't it clear that rising rates hurt bondholders?

HOW HIGHER RATES BENEFIT INCOME

But price changes form only part of bond returns. Income is the other critical component. Many bondholders fall into the trap of monitoring market value, when the reason they invested in bonds

to begin with was for the income! Indeed, income generation is perhaps bonds' biggest advantage over other assets. And the fact is, when interest rates rise, *the income increases*, so long as the portfolio is actively managed to maintain its duration over time.† This enables new, higher-interest bonds to be brought into the portfolio, and the resulting benefit is more income. Understanding this dynamic is key to successful bond investing.

To illustrate, the display at the top of the following page shows the interest thrown off by \$1,000,000 bond portfolios of different maturities as interest rates rise one percentage point a year for two years, then stabilize for one year. We've set the initial yields for the portfolios close to the market at the time of publication and assumed active management, which includes maintaining high credit quality. Most important, all income is withdrawn and spent. We used this approach because it's the most conservative: The model portfolios will get no benefit from reinvesting the interest income at higher rates—and we can focus solely on the effects of those rising rates on income and principal. In

* David A. Levine, "The Benefits of Rising Interest Rates," *The Journal of Portfolio Management*, 22 (Winter 1996), pp. 79-86

† A bond's price falls roughly 1% per year of "duration" for every percentage-point rise in market interest rates. In a 5% interest-rate environment, for instance, a six-year bond has a duration of about 4.9 years. So when interest rates rise one percentage point—from 5% to 6%—the bond's price declines some 4.9%.

Rising rates may drive prices down, but they also increase income

Income from \$1,000,000 Portfolios* (No Reinvestment of Income)

Year	Money Market (3 mo. T-bills) 1.2% initial rate		Short Bonds (2 yrs.) 1.6% initial rate		Intermediate Bonds (6 yrs.) 3.1% initial rate		Long Bonds (30 yrs.) 4.8% initial rate	
	End Rate	Income	End Rate	Income	End Rate	Income	End Rate	Income
1	2.2%	\$15,750	2.6%	\$18,423	4.1%	\$33,055	5.8%	\$48,534
2	3.2	25,750	3.6	27,973	5.1	40,862	6.8	50,271
3	3.2	32,000	3.6	34,961	5.1	46,234	6.8	51,175
Three-year total		\$73,500		\$81,357		\$120,151		\$149,980
Total if no rate change		\$36,000		\$48,000		\$93,000		\$144,000

*Rate rise is incremental, so income reflects average of mid-year and year-end rates.
Source: Bernstein estimates

actual practice, compounding of reinvested income would boost returns considerably.*

The incremental income resulting from rising rates (the difference between the three-year total and the total if there'd been no rate change) was in the \$27,000–\$37,000 range for all but the long-bond portfolio. Long bonds showed the smallest benefit, about \$6,000, because when interest rates rise, their prices fall so much that fewer new income-producing bonds can be bought to replace the old ones.

The longest portfolio earned the most *total* income however: Long bonds have to yield somewhat more

than shorter-term bonds or no one would assume their extra risk.

INCOME OVER A CYCLE

But there's more to the story, because interest rates move up *and* down. So we've researched the impact of two years of rate declines *after* the rise, creating a five-year cycle of rate changes.

In the last two years of our scenario, interest rates fall back to their initial levels. The analysis continues to assume the portfolios are actively managed to maintain duration. The income effect of the full five-year cycle can be seen in the display below.

Each of the portfolios, except the long bonds, produced far more income in *total* than if interest rates had been stable. And the intermediate bonds produced far more than either of the shorter-duration portfolios.

In other words, for bondholders dependent on their portfolios for income, rising rates should be welcomed—not feared.

MARKET VALUE CAN REBOUND IN A FULL CYCLE

What effect do these interest-rate changes have on the market value of the portfolios, apart from the income they generate? The display at the top of the facing page looks at the market values of the portfolios from the previous example. Again, all income is withdrawn and spent. As rates rise in the first two years, prices fall and the market values of the portfolios go down for all but the money markets. The 30-year portfolio is particularly affected. The additional income generated as rates rise is not enough to offset these initial

Over a full interest-rate cycle, interest income may increase across the maturity spectrum

Income from \$1,000,000 Portfolios (No Reinvestment of Income)

	Money Market (3 mo. T-bills)	Short Bonds (2 yrs.)	Intermediate Bonds (6 yrs.)	Long Bonds (30 yrs.)
Total income over five years	\$120,000	\$137,232	\$201,657	\$250,222
Total income if no rate change	\$60,000	\$80,000	\$155,000	\$240,000

Source: Bernstein estimates

*These analyses don't take into account the cost of selling the bonds and buying new ones, and transaction costs can be prohibitive for individual investors. Active bond management can realize economies of scale because of the discounts available for purchases and sales in large volumes.

**Declines in market value from rising interest rates can be recouped—
but the ride can vary considerably**

Market Value at Year-End of \$1,000,000 Portfolios
(No Reinvestment of Income)

	Year	Money Market (3 mo. T-bills)	Short Bonds (2 yrs.)	Intermediate Bonds (6 yrs.)	Long Bonds (30 yrs.)
Rates Rise 1% a year	1	\$1,000,000	\$985,399	\$951,458	\$860,786
	2	\$1,000,000	\$971,152	\$906,546	\$752,571
Rates Stable	3	\$1,000,000	\$971,152	\$906,546	\$752,571
Rates Fall 1% a year	4	\$1,000,000	\$985,365	\$951,003	\$859,104
	5	\$1,000,000	\$999,930	\$999,004	\$995,237

Source: Bernstein estimates

declines in market value. And if you need to cash out during such a period, you lock in these losses. That prospect is precisely what's causing concern among bondholders now.

However, when interest rates fall in the last two years of our hypothetical cycle, prices recover. Now the equation is turned on its head: The longer the maturity, the bigger the boost from the price increases. As interest rates decline, bondholders are rewarded for holding higher-interest bonds that, by virtue of their longer maturity, will throw off more income for a longer time than new bonds, and are thus more valuable.

In our example, the short and intermediate portfolio values are almost restored to their initial level. Even the long portfolio comes all the way back save for \$5,000. This is a crucial point: If you've cashed out, you won't experience this recovery, which means that selling in panic is as poor an idea in bonds as it is in stocks. Sticking with a long-range plan will generally allow you to ride out interest-rate cycles.

OVERALL WORTH IS THE KEY

The display below shows the ending value of each portfolio as a total of market value plus cumulative income for the entire period. *Even without reinvesting the interest income*, each portfolio was worth more at the end of the cycle than if rates hadn't changed. (And again, compounding of reinvested income would have boosted returns.)

Evaluating the total return of a bond portfolio—the combination of price and income—in changing rate environments makes clear how important duration is. The risk/reward trade-off was best for

the intermediate portfolio, reinforcing our past research and findings.* Its premium wasn't much less than the shorter bonds', but it was far greater than the long bonds'—and was far less risky in the middle years in terms of principal. (Note that our hypothetical cycle—chosen because it illustrates the near-term concerns of bondholders—is least favorable to long bonds. However, over a longer timeframe, bondholders pick up more yield the longer their portfolio's maturity—though they'll pick up more volatility in the short term.)

The prospect of rising interest rates can be a boon to income-seeking bondholders who have portfolios of carefully chosen duration and high credit quality, and who make full use of active management.

If you'd like a copy of our original research from The Journal of Portfolio Management, or our research publication on bonds, please contact your Bernstein Advisor. ■

More information on www.bernstein.com
**"Rising Interest Rates:
 A Boon to Bondholders"**

**Your bond portfolio's worth may increase over a whole interest-rate cycle—
even if rates went up initially**

Ending Value After Five Years
(Market Value at End of Period Plus Income from All Five Years)*

	Money Market (3 mo. T-bills)	Short Bonds (2 yrs.)	Intermediate Bonds (6 yrs.)	Long Bonds (30 yrs.)
If rates changed	\$1,120,000	\$1,137,162	\$1,200,661	\$1,245,459
If no rate change	\$1,060,000	\$1,080,000	\$1,155,000	\$1,240,000
Difference	\$60,000	\$57,162	\$45,661	\$5,459

*No reinvestment of income
Source: Bernstein estimates

* A full treatment of the subject can be found in our research publication, *More Bang for Your Bonds: How Active Management Can Boost Your Returns*, pp. 6-7, Bernstein Investment Research and Management, 2001.