



September 2, 2003

## TIPS FOR YOUR BOND PORTFOLIO

### Introduction

At the beginning of August, I noted that investors who had put their money into bonds for safety may have been dismayed by the recent action of the bond market. Most visibly, the yield on the 10-year US Treasury note jumped from 3.54% at the end of June to 4.49% at the end of July. Holders of the 10-year note may have lost as much as -7% during July, a surprisingly steep decline for an instrument that many investors choose for safety. August was a better month; the yield on the 10-year ended the month at around 4.45%, so holders of the note earned their interest, plus a little bit of price appreciation, for a total return in the neighborhood of +0.5%.

The bond market's woes were particularly difficult for investors seeking safety. The Federal Reserve's much talked-about rate cuts over the past couple of years have greatly reduced the yields on the most conservative investments. As recently as the end of 2000, one-month certificates of deposit commanded yields in the range of 6.5%.<sup>1</sup> The same rate stood at 1.90% at the end of 2001, 1.37% at the end of 2002, and 1.07% at the most recent weekly reading (8/29/03). Investors can still find relative safety and good liquidity, but only at very low yields. Higher yields are available at longer maturities, but the month of July demonstrated vividly the risks investors take in reaching for them.

The current environment, with its low interest rates, poses a challenge for investors with significant allocations to bonds or cash. For investors with large upcoming liquidity needs, unfortunately, the best course will often be to live with the low yields that go with maintaining the necessary levels of safety and liquidity. But many investors make allocations to cash or fixed income for long-term strategic reasons, driven more by risk management considerations than by liquidity needs. Many of these investors could benefit from an allocation to Treasury Inflation-Indexed Securities, also known as Treasury Inflation-Protected Securities, or TIPS. These notes

<sup>1</sup> Source: Federal Reserve FRED II database, one-month CD secondary market rate weekly series. A useful weekly table of interest rates is available every Monday in the Federal Reserve's H.15 release, available at <http://www.federalreserve.gov/releases/h15/current/h15.pdf>

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have explicit features that cause the payments they make to investors to increase with inflation. Because expectations of inflation are one of the key components in interest rates, TIPS have the potential to provide attractive real (after inflation) yields, while also cushioning one of the key risk factors that can contribute to rising interest rates.

### How TIPS Work

Like their fixed-coupon cousins, TIPS are obligations of the US Treasury, backed by the full faith and credit of the US Government. The Treasury sells these bonds at auction, and there is an active secondary market in them, so investors can generally buy them easily.

TIPS have a fixed, stated coupon rate. The most important issues have ten-year maturities. Recent issues have coupons of 3% (July 2012) and 1-7/8% (July 2013), lower than comparable fixed-coupon notes. The compensating difference is in the inflation protection of TIPS. Every six months, the Treasury pays a coupon based not on the original principal, but on an adjusted principal that takes into account the previous six months' change in the non-seasonally adjusted Consumer Price Index (CPI-U). The effect is that the bond's coupon payments increase with inflation. So if the CPI-U increases by 1% in a six-month period, a 3% TIPS that had previously had \$1000 face value now pays a semiannual coupon of \$15.15 (half of 3% x \$1000 x 101%), rather than \$15.00 (half of 3% of \$1000). If the CPI-U falls, a deflationary scenario, then the principal amounts on TIPS adjust downward. To facilitate trading, the Treasury publishes tables of daily adjustments in effective principal amounts, reflecting recent inflation and smoothing the changes in value.

Buy-and-hold investors in TIPS receive another benefit. At maturity, the investor receives the *greater* of the adjusted principal or the original face value of the bond. So after ten years the investor receives back the original investment, *adjusted for inflation*. And if deflation occurs, investors will receive at least the original *nominal* face value of the bonds back at maturity.

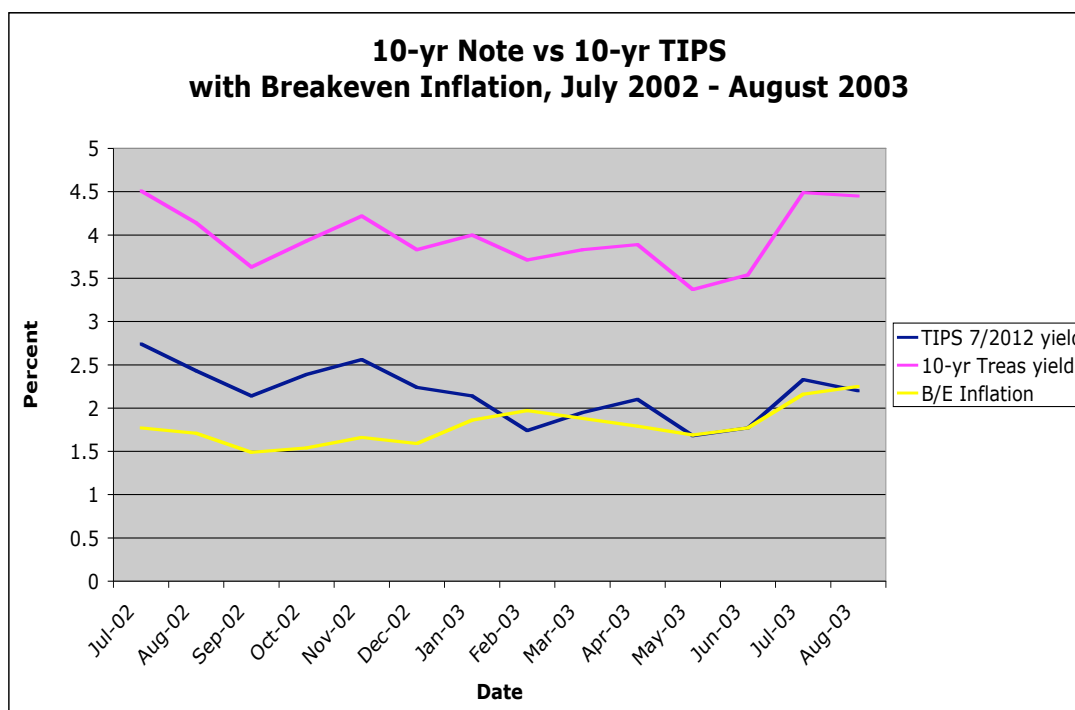
### TIPS vs. Regular Old ("Nominal") Treasuries

It's often useful to think about Treasury yields as having two components – inflation, and a real interest rate, which is just the bond's yield in excess of inflation. For longer-dated bonds, the real interest rate in turn has two components – expectations of future inflation, and a premium for taking on interest rate risk. If inflation suddenly increases, especially by surprise, then bond yields typically jump too, and bond prices fall.

One thing the TIPS market gives us is a market-based measure of the components of yield on nominal Treasuries. By comparing the yields on TIPS and their comparable fixed-coupon Treasuries, investors can estimate a *break-even rate of inflation*, the rate of future inflation over the life of the bonds such that the inflation-protected security would pay more than the fixed-coupon one. One interpretation of this break-

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even inflation rate is that it is the market's assessment of the components of the interest rate that are due to current inflation and expectations of future inflation. For investors, if the breakeven inflation rate seems too low (actual future inflation seems likely to be higher than the breakeven rate), then TIPS appear relatively attractive. If the rate seems too high, then the fixed-coupon bonds seem like a better value. The figure below shows break-even inflation for the 3% TIPS issue due 7/15/2012, against the yield on the current 10-year Treasury. Note that the yield we estimate for the nominal Treasury is a true yield to maturity, based on its fixed cash payments. For the TIPS, the same calculation produces a yield figure as if there were no CPI-U adjustment, so we could, in fairness, quote a TIPS yield of 2.20% as "2.20% plus future inflation."



Source: Interest rates, FRED II database, St. Louis Fed website. Breakeven rate calculated by author

One potential advantage of TIPS is that changes in the rate of inflation, should have little influence on their price, since, unlike ordinary Treasuries, the payments they make adjust with inflation. So while an unexpected jump in inflation should cause the prices of nominal Treasuries to fall, it should have much less effect on the prices of TIPS. As a result, the yields on TIPS should primarily reflect the real rate of interest, not the inflation component. Real interest rates do fluctuate, so TIPS do have price risk, but they usually have less price risk than comparable fixed-coupon Treasuries. Specifically, in July 2003, while the nominal 10-year yield jumped from 3.54% to 4.49%, the TIPS yield rose much less, from 1.77% (plus future inflation) to 2.33% (plus future inflation). At the same time, the breakeven inflation rate rose from 1.77% to 2.16%. Under this interpretation, nearly half of the rise in the 10-year Treasury yield was due to an increase in inflation expectations, which did not affect the TIPS. For the month of August, while the nominal Treasury's yield remained almost flat (it fell from 4.49% to

4.45%), the breakeven inflation rate ticked 9 basis points higher<sup>2</sup>. That translates to a small rally for the TIPS.

TIPS do have risk. Their yields can rise and fall, since real interest rates can increase or decrease. But because of their inflation-indexed payments, they are generally less interest-rate sensitive than their nominal counterparts. And if inflation comes in at levels near the breakeven rate, in the end the TIPS will pay all-in yields near those of the nominal Treasuries.

### **A word on taxes**

Taxable investors should be aware of a tax wrinkle with TIPS. As with ordinary Treasuries, the interest on TIPS is subject to Federal, but not to state, income tax, and the usual rules on the amortization of bond premium and discount, along with the capital gains rules, apply. The wrinkle is that the IRS has ruled that the inflation-driven principal adjustments that TIPS holders experience are subject to “phantom income” treatment similar to that on zero-coupon bonds. That is, even though the investor does not receive principal adjustments in cash until maturity, the value of any upward adjustment is taxable to the investor as ordinary income in the year in which it occurs. Even so, if inflation occurs at roughly the breakeven rate, then the total tax burden a TIPS investor faces is, at least in the early going, comparable to the burden an investor in coupon Treasuries faces.

### **TIPS in your portfolio**

No security is appropriate for every investor, but TIPS are worth considering for inclusion in many investors’ portfolios. For investors with significant, permanent allocations to cash – without a near-term need to use the money – TIPS may present an interesting alternative to low-yielding money market funds. TIPS are more likely than cash investments to suffer short-term declines in value, but they stand a good chance of outperforming cash in the long term. This is because short-term interest rates reflect inflation in a general way – for the most part, they rise and fall as inflation increases and decreases – without the premium associated with long-term holdings. TIPS provide that component of return that varies with inflation, plus a component that rewards the holder for the longer-term holding. The main tradeoff is that in the event of an unexpected liquidity need, a holder of TIPS risks selling at a disadvantageous price, depending on market conditions.

Investors with permanent, long-term allocations to bonds may also benefit from using TIPS, although perhaps more selectively than cash-oriented investors. At times when investors perceive that long-term yields are low but likely to rise – particularly if the cause of a future rate increase is likely to be an increase in inflation – then TIPS may outperform nominal bonds. In general, when investors may be inclined to shift from longer-maturity bonds to shorter ones, but feel they sacrifice too much yield in moving

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<sup>2</sup> US Department of the Treasury, Daily Treasury Yield Curve rates, available daily at <http://www.treas.gov/offices/domestic-finance/debt-management/interest-rate/yield.html>

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to shorter maturities, they should at least think about TIPS. On the other hand, at times when investors judge that longer-term, nominal Treasuries offer attractive yields and attractive potential for price appreciation – an environment of relatively high rates, where the investor anticipates that rates could fall – nominal Treasuries may be a better choice. Nominal Treasuries will generally outperform TIPS in such an environment.

### Conclusion

The recent, sharp increase in interest rates, epitomized by the yield on the 10-year US Treasury note, calls attention to the interest rate risk in even such seemingly safe investments as US Treasury securities. Because shorter-term instruments suffered less from the recent increase in rates, investors may be inclined to rush toward those shorter-dated securities. Currently, however (as is often, but not always, the case), yields on shorter investments are enough lower that in reducing their risk, investors moving toward shorter maturities may substantially reduce their yield potential.

TIPS potentially offer a middle ground between cash and longer-term investments. Because they have payouts that vary with inflation, they may outperform their nominal counterparts in an environment of low, but rising rates, particularly if the increase in rates is associated with an increase in inflation. TIPS can underperform as well, of course. This is most likely to occur when real rates – interest rates after taking into account the rate of inflation – fall.

No investment is a top performer for all investors or in all seasons. In the current environment, however, TIPS deserve consideration by a broad range of investors.

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*Source for bond data: See footnotes. For more details on TIPS, including a reference to an IRS publication on their tax treatment, see <http://www.publicdebt.treas.gov/of/ofinflin.htm>*

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