

Treasury Inflation Protected Securities (TIPS) in a Rising Rate Environment

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Introduction

Vast monetary stimulus, record-low interest rates, and growing concerns about the direction of inflation have led many investors to seek protection against a potentially rising rate environment. The nominal bond portion of every portfolio is of course vulnerable to rising rates and inflation, which has led to a reasonable question: what are Treasury Inflation Protected Securities (TIPS), and are they an effective hedge against rising rates? This research aims to answer this question by detailing the role of TIPS in a portfolio, from both a strategic and tactical standpoint; provides insight regarding the drivers of TIPS performance; and dispels a few of the misconceptions surrounding TIPS. Following a preface of the current market environment, we introduce the basic structure and purpose of TIPS. Second, we examine expected performance in a rising rate environment – do TIPS provide the hedge that investors often expect? Third, we suggest ideal times to invest and divest from TIPS in a short-term tactical context. Lastly, with regard to tactical allocation, we discuss the substitutes for TIPS that might act as better tools for hedging and/or bolstering investment returns.

Current Rate Environment

In late 2013, the Federal Reserve shifted monetary policy towards a reduction in bond buying, or “tapering”, under the guidance of Fed Chief Ben Bernanke. Among other things, as a result of the change in monetary policy by the Fed, liquidity will slowly be removed from the markets, which should ultimately lead to increases in interest rates. Many investors also believe that US



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economic growth is accelerating, which would further fuel a ramping-up of interest rates. Given these predictions, investors typically shorten the duration of their portfolios in an effort to mitigate losses to the values of nominal bonds, in the case that rates do increase. As a result, markets are paying greater attention to instruments that act as hedges against rising interest rates.

How do TIPS Work?

Investors are primarily concerned with nominal interest rate risk, credit risk, and inflation risk in their bond portfolios. Nominal interest rate risk can be controlled by selecting bonds with lower duration, and credit risk can be mitigated by selecting bonds issued by safer borrowers. However, controlling inflation risk is less straightforward, which is where TIPS come into play. TIPS, or treasury inflation protected securities, are bonds issued by the U.S. Treasury and constructed to adjust principal upwards or downwards dependent upon the published inflation rate (CPI-U), ex-post. Because coupon payments are calculated as a percentage of underlying principal, the principal adjustment also results in coupon adjustment. After inflation data is released from the Bureau of Labor Statistics each quarter, the underlying principal of TIPS is adjusted upwards if inflation comes in above expectation, not adjusted if inflation equals expectation, or adjusted downwards if inflation is below expectation. This unique quality gives TIPS a less correlated return stream as compared to other similar U.S. Treasury bonds and provides diversification value.

As shown in the following visual, it is intuitive that TIPS should lag U.S. Treasury bonds each year by the rate of inflation, since the principal and coupons of the TIPS adjust upwards by inflation each year to effectively compensate for this return differential. Sharp differences between actual and expected inflation can “break” this relationship and create differences in real returns, as seen below in year 2009.



It is important to note that TIPS are less exposed to inflation risk relative to other fixed income instruments, due to the reasons above, but are still exposed to duration risk due to their regular coupon payments. We will discuss this in greater detail below.

As you would expect, the TIPS market suffered mightily during the second quarter of 2013, as interest rates increased and inflation expectations fell. During this period, 10 year TIPS yields increased by roughly 90 bps resulting in a quarterly un-annualized return of -5.91% for the Standard and Poor's/ Dow Jones 1-10 year TIPS index . Interestingly, the expected future inflation rate slowed during the second quarter as investors interpreted negatively the Federal Reserve's comments about reducing their bond purchases, inferring that higher future interest rates would result in lower overall GDP growth.

TIPS - Strategic Vs. Tactical Allocation

From a strategic asset allocation perspective, the role of TIPS has not changed. These instruments can provide long-term benefits through their quality as a risk-free fixed income asset with the added advantage of providing an embedded inflationary hedging component. TIPS have also been used in liability-driven investing (LDI) strategies to match inflation-sensitive liability streams. Because principal is adjusted to unexpected inflation, TIPS produce a return stream that historically has been less correlated to other bonds, bringing diversification benefits to the portfolio. However, from a tactical asset allocation perspective, we believe that other instruments are available that might act as better tools for hedging and/or bolstering investment returns.

A common misconception is that TIPS protect investors from overall inflation more effectively than U.S. Treasuries in the short-term, but this is not necessarily correct; TIPS will provide better (or worse) inflation protection than U.S. Treasuries only when differences exist between actual and expected inflation. TIPS returns are composed of: changes in real interest rates and changes in inflation as measured by the CPI-U. Additionally, there may be small supply/demand issues that may impact TIPS depending on their particular point on the yield curve. In comparison, Treasury Bond returns are composed of the expected inflation rate, an inflation risk premium, and a real yield premium. Because U.S. Treasuries are priced according to expected inflation and TIPS are adjusted to actual inflation, the total returns (coupons + gains from principal adjustment) should be equal between two securities of similar duration. This means that the difference between actual inflation (TIPS returns) and expected inflation (U.S. Treasury bond returns) creates the difference in returns across these two instruments. For example: depending on personal inflation projections, an investor may wish to either invest in TIPS if they expect inflation to be higher than general consensus (Treasury inflation premium will undercompensate for inflation and TIPS will compensate adequately), or invest in Treasuries if inflation is expected to be lower than consensus (Treasury inflation premium will overcompensate for inflation and TIPS will compensate adequately).

TIPS are a hedge against inflation, but are they a hedge against rising rates?

Contrary to what many investors might expect, the answer is “No”. It is true that the inflation-adjusting quality of TIPS will boost the value of these instruments when inflation rises, but if rates are also rising then the value of TIPS will take a hit due to their duration component, just like other fixed income instruments. If inflation remains constant and rates rise, as is often the case, holding TIPS will not compensate the investor and will result in just as much interest rate risk as other fixed

income instruments; since notional principal and coupon payments remain the same (unchanged inflation means no adjustment to principal). Think of TIPS in terms of the instrument's two isolated properties: 1) the inflation-adjusting component, which will boost/reduce returns for positive/negative unexpected inflation shocks, and 2) the duration component, which, just like a traditional nominal bond, will hurt or help the value of the instrument as interest rates change. These two qualities of TIPS can move together, or can offset each other, depending on interest rate and inflation movements.

The Impacts of Higher Interest Rates

In an effort to determine how TIPS will be affected by higher interest rates, we must first acknowledge that there are several different scenarios in which rates can rise. In the first scenario, interest rates rise as a result of inflation increasing within the economy. Based on higher future inflation expectations, investors will demand higher yields to compensate for the expected price depreciation of their portfolio as nominal yields rise. In this scenario, with rising inflation rates and nominal yields, TIPS should perform better than a corresponding U.S. Treasury bond as the underlying principal is adjusted higher for a rise in the CPI-U rate.

In the second scenario, inflation remains relatively tame as measured by the CPI-U, but the U.S. Treasury curve steepens as a result of the Federal Reserve tightening monetary policy and allowing interest rates to move back towards their long-term averages. In this example, both TIPS and nominal U.S. Treasury bonds would perform poorly due to their extended duration profile. To be fair, the duration of these nominal bonds and TIPS are not exactly the same, with TIPS reacting to changes in real yields while U.S. Treasuries react to changes in nominal rates. However, in this example, given that the inflation expectations are largely unchanged, we can assume a similar path and rate of change in yields for both U.S. Treasury bonds and TIPS.

Barclays Capital Index Category	Average Effective Duration
US High Yield	3.74
US Inflation-Protected Bond	6.36
US Intermediate Government	4.23
US Intermediate-Term Bond	4.85
US Multi-Sector Bond	4.36
US Short Government	1.97
US Short-Term Bond	2.29
US World Bond	5.41

Bond investors are rightfully concerned about rising rates and the negative consequences to their portfolios. While TIPS provide a slight cushion during periods of rising rates and rising inflation due to the additional compensation they receive, the underlying coupon and duration of TIPS act in the same manner as a traditional U.S. Treasury bond would. The table to the right shows the average duration for a variety of Barclays Capital Indices. As is shown, TIPS carry considerably more duration risk relative to other sectors of the fixed income markets. As a result, any benefits received for changes in the level of inflation might be overwhelmed by the losses due to the longer duration profile.

A very reasonable question to ask is whether 5-year TIPS might be used instead of 10-year TIPS in order to mitigate the duration risk mentioned previously. The answer is that shorter duration TIPS come at additional costs. The recent yield on these instruments has been approximately -10 bps on 5-year TIPS versus approximately 60 bps on 10-year TIPS. To overcome this headwind and achieve breakeven returns on 5-year versus 10-year TIPS, the investor must be even more precise in the prediction that inflation will rise faster, and by even more than the national consensus (remember that the additional return from TIPS over Treasuries only occurs when actual inflation outpaces expected inflation). Viewed from another angle, investing in 5-year TIPS rather than 10-year TIPS does reduce duration risk but investors have recently paid for this benefit via the negative real yield (moving from a 3-year average annual return of 2.37% to 1.31%). See chart below.



Portfolio Alternatives

In evaluating other asset classes that may provide more ideal sensitivity to increased economic growth and interest rate mean-reversion (i.e. react more positively to a rise in inflation and interest rates), we believe that investors should consider high yield bonds and floating rate bank loans. Assuming positive economic growth fuels inflation and rates, credit spreads will typically tighten through less perceived credit risk in the markets, boosting the value of high yield bonds. Furthermore, as interest rates rise, high yield bonds will take less of a hit in value due to their larger coupon payments relative to TIPS, and therefore lower duration. Floating rate bank loans currently also provide an income advantage over TIPS, through credit risk, while offering the ability to potentially mitigate price deterioration via their shorter duration (bank loan coupons typically reset every three months). However, there is no free lunch; investors will receive the benefits of both of these assets as a result of their lower credit quality and greater liquidity risks, which must be considered against an investor's investment policy before portfolio adoption.

Conclusion

In conclusion, TIPS are constructed to be a better inflation hedge within the U.S. Treasury bond family, and continue to play an important role in strategic asset allocations. However, TIPS should not be thought of as a hedge for rising interest rates. Additionally, unless investors require a default-free instrument, we believe that other investment options such as high yield bonds and floating rate bank loans may provide more “bang for your buck” with regard to tactical hedging and/or bolstering of investment returns. As always, the credit and liquidity risks of these instruments must first be weighed against the investor’s constraints and risk tolerance.

Notes & Disclosures

1. <http://us.spindices.com/indices/fixed-income/sp-0-10-year-us-treasury-tips-index>;
<http://us.spindices.com/indices/fixed-income/sp-0-5-year-us-treasury-tips-index>
2. TIPS 5 Year Returns - FRED
FRED Graph Observations
Federal Reserve Economic Data
Economic Research Division
Federal Reserve Bank of St. Louis
<http://research.stlouisfed.org/>

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