



Inflation Protection: A Closer Look at CPI Swaps

With investors increasingly focused on the prospect of higher inflation, we examine a popular alternative to traditional inflation hedging strategies

Featured Contributors



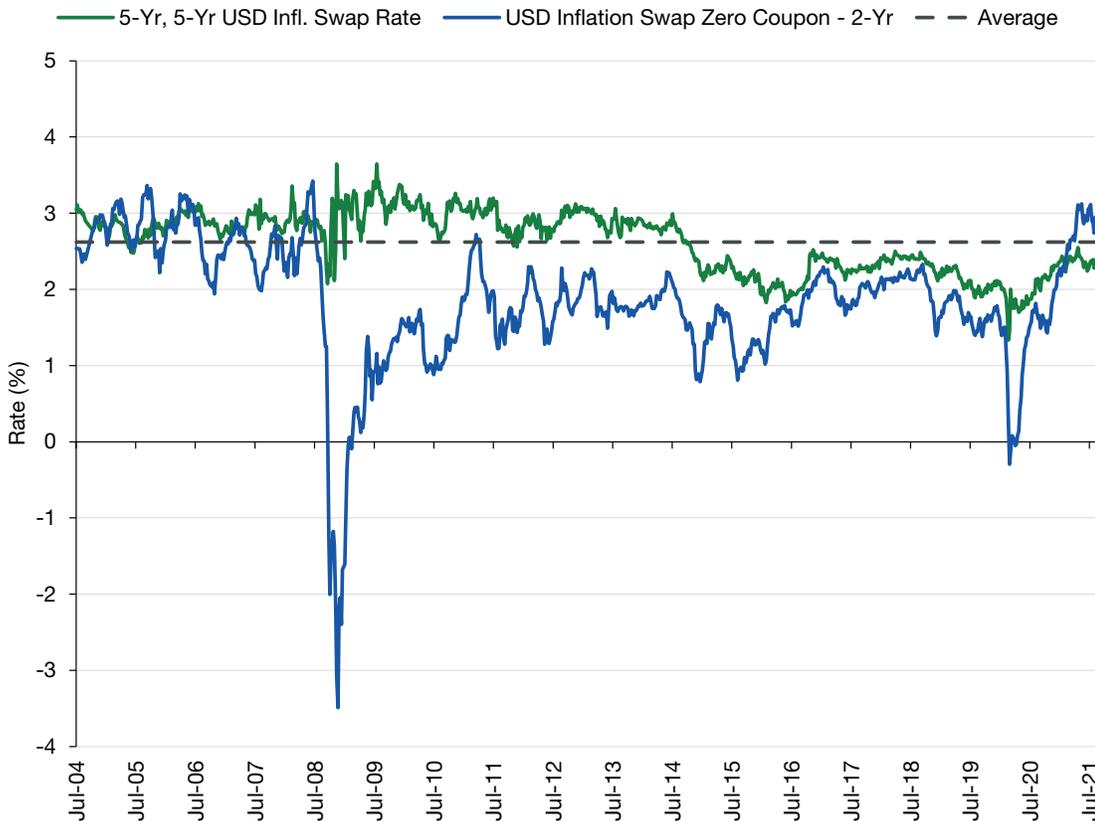
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Figure 1. Market Inflation Expectations Vary Over the Coming Years

Data for the period July 23, 2004–November 2, 2021



Source: Bloomberg. Data as of November 2, 2021.

The 2-year USD Inflation Swap Zero Coupon is a derivative used to transfer inflation risk from one party to another through an exchange of cash flows. In a zero-coupon inflation swap, only one payment is done at maturity where one party pays a fixed rate on a notional principal amount, while the other party pays a floating rate inked to an inflation index. The 5-year, 5-year inflation swap rate represents expected inflation (on average) over the five-year period that begins five years from today.



Inflation Protection

Whether you believe it will be “transitory” or “persistent,” chances are you have been considering ways to protect your portfolio from inflation. But is there a strategy that avoids the pitfalls of traditional inflation hedges? And how might it work?

Before we tackle those questions, we think it’s worth looking at where the market thinks inflation may be headed. Figure 1 on the first page depicts two widely followed measures of market expectations for the next two years, and the longer term.

While the market anticipates a surge in inflation over the short term that is above the U.S. Federal Reserve’s 2% target, expectations for inflation in the future have risen only modestly and are still well below the average expectations of the past two decades. Investors concerned that the market is underestimating the risks of inflation in the future may wish to consider an inflation protection strategy. In [a previous Market View](#), Lord Abbett Director, Product Strategy [Stephen Hillebrecht](#) compared key characteristics of two popular inflation protection vehicles, Treasury Inflation Protection Securities (TIPS) and a portfolio of professionally managed swaps tied to changes in the U.S. Consumer Price Index (CPI swaps).

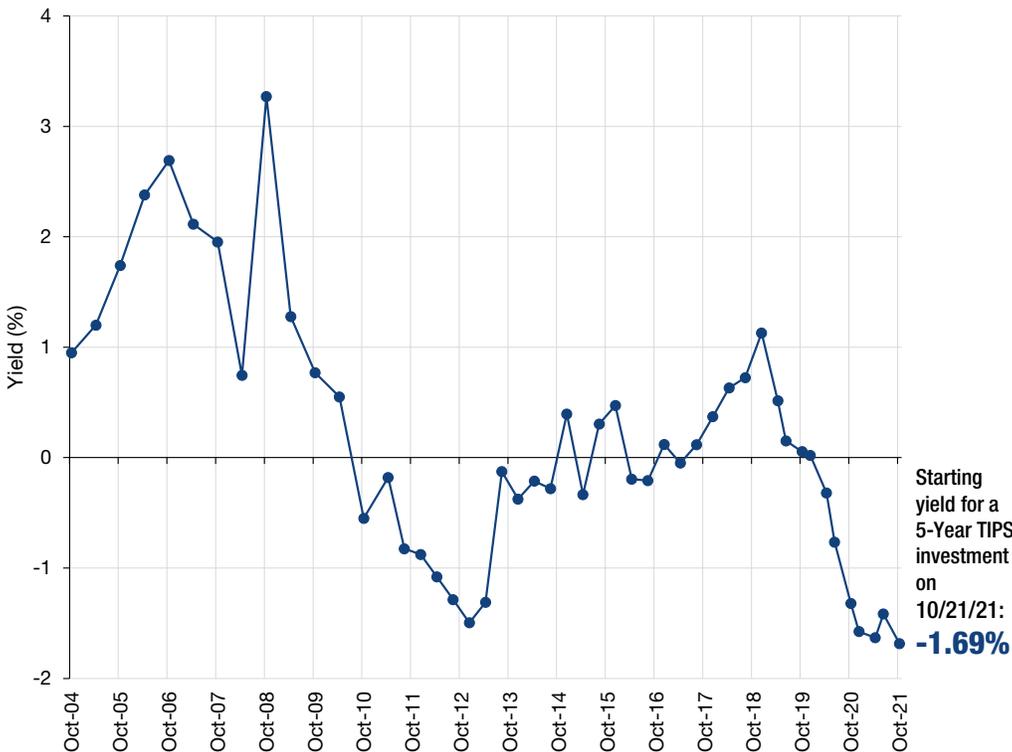
By capturing movements in inflation expectations and changes in headline CPI, Hillebrecht noted, the value of CPI swaps is more directly targeted toward inflation than TIPS. He also cited the longer duration often associated with TIPS and their strong historical correlation with U.S. Treasury securities.

“In essence, CPI swaps can provide exposure to the inflation component that TIPS are desired for, while leaving behind the duration exposure,” he said.

Another potential drawback is the negative yields currently on offer for TIPS (Figure 2). By accepting negative yields, TIPS investors are essentially forgoing income for the potential of principal appreciation at maturity.

Figure 2. TIPS Investors Face Yields Deep in Negative Territory

Yield on the Bloomberg U.S. Treasury 5-Year TIPS High Yield Index, October 26, 2004–October 21, 2021



Source: Bloomberg. Data as of October 21, 2021.

The historical data shown in the chart above are for illustrative purposes only and do not represent any specific portfolio managed by Lord Abbett or any particular investment. Indexes are unmanaged, do not reflect the deduction of fees or expenses, and are not available for direct investment. **Past performance is no guarantee of future results.**



As more investors become aware of the potential pitfalls of deploying TIPS, we have received requests for more detailed information on CPI swaps. Here is a summary of how they work.

Under the Hood of CPI Swaps

Interest-rate swaps consist of a contract between two parties that stipulates that one party will make fixed payments while the other will make variable payments. CPI swaps are a type of interest-rate swap in which the fixed payment is based on the current, expected rate of inflation and the variable payment is based on the actual rate of inflation.

The actual rate of inflation is measured by the cumulative change in the headline CPI, which includes food and energy. The expected rate of inflation, which determines the fixed-payment side of the contract, is estimated using TIPS breakeven rates, existing CPI swap rates, or other market data. (The TIPS breakeven rate is the difference between the yield on a TIPS and the yield on Treasury debt of the same maturity.)

The amounts of the agreed-upon payment are determined by the fixed or variable rate multiplied by the size, or notional amount, of the contract.

CPI swaps come in a few varieties, the most common of which is a zero-coupon swap. These are similar to zero-coupon bonds in that the only payment occurs when the contract matures. Thus, there is no cash commitment when a party enters a zero-coupon swap agreement or during the life of the contract. An investment strategy can therefore enter a notional amount that matches the size of an underlying portfolio.

A Hypothetical Example: Three Scenarios

Suppose inflation is expected to average 2.5% over the next five years. Parties interested in hedging against a higher actual rate of inflation would seek a swap in which they would pay the expected rate and receive the actual rate of inflation. They could enter a five-year, zero-coupon CPI swap contract, in which they would pay 2.5% compounded over the life of the contract. In exchange, they would receive the actual, cumulative change in CPI over the next five years. Here's how it would work (note that the examples provided here are hypothetical and for illustrative purposes only):

The notional value of the fixed portion
= \$10 million @ 2.5% interest over five years
= (\$10 million) * (1.025)⁵ = \$11,314,082.

When the zero-coupon CPI swap reaches maturity, there are three potential scenarios. In Scenario 1, the actual change in the CPI is 2.5%, matching the rate that was expected when the contract was created, so no money changes hands.

In Scenario 2, the change in the CPI is greater than 2.5%, so the CPI contract will generate a gain. If the CPI rises by 3.5%, for example, the value of the floating portion of the contract will equal:

\$10 million @ 3.5% over five years
= (\$10 million) * (1.035)⁵ = \$11,876,863,
for a gain of \$562,781, or 5.6%.

In Scenario 3, the change in the CPI is less than 2.5%, so the CPI swap will produce a loss. If the CPI rises by just 1.5%, for example, the value of the floating portion will equal:

\$10 million @ 1.5% over five years
= (\$10 million) * (1.015)⁵ = \$10,772,840,
for a loss of \$541,241, or -5.4%.

The market value of a contract may change daily as it is marked to market. If inflation expectations increase, the value is likely to rise; if inflation expectations fall, it is likely to decline.

The inflation-swap market has seen robust growth amid the COVID-19 pandemic as investors sought long-term protection, according to a Bloomberg Intelligence article published in May,¹ with the total notional amount traded and number of trades reported to DTCC's swap-data repository increasing almost 40% year-to-date through May 12.



A Final Word

Given that inflation has, historically, presented a risk to U.S. investors, and that higher inflation is likely in the future, hedging that risk in an effective manner is critical. The traditional means of hedging, however, come with risks of their own that may undercut their hedging capability. Commodities and real estate are highly volatile and subject to idiosyncratic supply and demand factors, while, as we noted earlier, TIPS carry significant duration risk and high correlations with Treasury securities. On the other hand, a portfolio of short-duration securities, combined with CPI swaps, would appear to reduce these risks while offering the possibility of capital appreciation.

¹Ira F. Jersey and Angelo Manolatos, "TIPS May Be Skewed by Fed, but Inflation Reading Undeniably High," Bloomberg Intelligence, May 24, 2021.

Unless otherwise noted, all discussions are based on U.S. markets and U.S. monetary and fiscal policies.

Asset allocation or diversification does not guarantee a profit or protect against loss in declining markets.

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Projections should not be considered a guarantee.

Fixed-Income Investing Risks

The value of investments in fixed-income securities will change as interest rates fluctuate and in response to market movements. Generally, when interest rates rise, the prices of debt securities fall, and when interest rates fall, prices generally rise. High yield securities, sometimes called junk bonds, carry increased risks of price volatility, illiquidity, and the possibility of default in the timely payment of interest and principal. Bonds may also be subject to other types of risk, such as call, credit, liquidity, and general market risks. Longer-term debt securities are usually more sensitive to interest-rate changes; the longer the maturity of a security, the greater the effect a change in interest rates is likely to have on its price.

The credit quality of fixed-income securities in a portfolio is assigned by a nationally recognized statistical rating organization (NRSRO), such as Standard & Poor's, Moody's, or Fitch, as an indication of an issuer's creditworthiness. Ratings range from 'AAA' (highest) to 'D' (lowest). Bonds rated 'BBB' or above are considered investment grade. Credit ratings 'BB' and below are lower-rated securities (junk bonds). High-yielding, non-investment-grade bonds (junk bonds) involve higher risks than investment-grade bonds. Adverse conditions may affect the issuer's ability to pay interest and principal on these securities.

This material may contain assumptions that are "forward-looking statements," which are based on certain assumptions of future events. Actual events are difficult to predict and may differ from those assumed. There can be no assurance that forward-looking statements will materialize or that actual returns or results will not be materially different from those described here.

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Glossary & Index Definitions

Treasuries are debt securities issued by the U.S. government and secured by its full faith and credit. Income from Treasury securities is exempt from state and local taxes. Although U.S. government securities are guaranteed as to payments of interest and principal, their market prices are not guaranteed and will fluctuate in response to market movements.

TIPS (Treasury Inflation-Protected Securities) are U.S. Treasury securities indexed to inflation in order to protect investors from the negative effects of inflation. The principal of a TIP is adjusted according to the CPI-U. With a rise in the index, or inflation, the principal increases. With a fall in the index, or deflation, the principal decreases. Though the rate is fixed and paid semi-annually, interest payments vary because the rate is applied to the adjusted principal. Specifically, the amount of each interest payment is determined by multiplying the adjusted principal by one-half the interest rate. Upon maturity, TIPS pay the original or adjusted principal amount, whichever is greater. Because TIPS are adjusted for inflation, a change in real interest rates (but not nominal interest rates) will affect the value of TIPS. When real interest rates rise, the value of TIPS will decline, and when real interest rates fall, the value of TIPS will rise.

A **basis point** is one one-hundredth of a percentage point.

A **bond yield** is the amount of return an investor will realize on a bond. Though several types of bond yields can be calculated, nominal yield is the most common. This is calculated by dividing the amount of interest paid by the face value.

The **Consumer Price Index (CPI)** measures the price changes for each item in a predetermined basket of goods and services, and the inputs are weighted according to their importance to consumers.

Correlation is a statistical measure that describes the strength of relationship between two variables. It can vary from 1.0 to -1.0.

CPI Swaps are derivative instruments used to hedge inflation risk by transferring inflation risk from one party to another through an exchange of cash flows.

Duration is a measure of the sensitivity of the price of a fixed-income asset to a change in interest rates and is expressed in years.

Tenor refers to the length of time until a financial obligation is due. For example, a loan is taken out with a two-year tenor. After one year passes, the tenor of the loan is one year.



The **U.S. Personal Consumption Expenditure price index (PCE)**, also referred to as the PCE deflator, is a United States-wide indicator of the average increase in prices for all domestic personal consumption. It is benchmarked to a base of 2009 = 100. Using a variety of data including U.S. Consumer Price Index and Producer Price Index prices, it is derived from personal consumption expenditures, the largest component of U.S. gross domestic product in the U.S. Bureau of Economic Analysis' National Income and Product Accounts report.

The **Bloomberg U.S. Treasury 5-Year TIPS High Yield Index** is a maturity-specific subset of the Bloomberg U.S. TIPS Index, which is an unmanaged index comprised of U.S. Treasury Inflation Protected Securities with at least \$1 billion in outstanding face value.

Bloomberg Index Information

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