Protection against inflation risk

Left unchecked, rising inflation can erode investment value over time and significantly reduce a portfolio’s real return. Inflation derivatives help manage this risk by offering a flexible, highly liquid way to capture returns pegged to future inflation growth. The most common type of these securities is an inflation swap (also known as a CPI swap linked to the Consumer Price Index).

Advantages over other inflation hedges

Investors interested in inflation-hedged strategies have often turned to Treasury Inflation-Protected Securities (TIPS) or gold, oil and other types of commodities. Each of these traditional inflation-protection investments, however, presents challenges. Commodities are notoriously volatile and may involve high investment minimums and fees. Equally problematic is the fact that TIPS and gold have demonstrated little total return correlation to CPI, the most frequently used inflation measurement [see Exhibit 1].

Short-dated inflation swaps* have delivered a strong correlation to CPI — similar to oil and commodity markets over the past five years but with only about 10-20% of the volatility of the commodity indices. They also are far more tax efficient than TIPS and, given their historically low correlation to equities, can help lower overall portfolio volatility, providing a practical solution to manage the uncertainty of inflation risk. In addition, because inflation swaps offer a wide range of maturities, from one to thirty years, they can easily fit into a broad range of inflation views to complement a variety of investment strategies.

* Using the 1-3 year Breakeven Index as a performance proxy.

Exhibit 1: Correlations to CPI, based on monthly total returns
January 1, 2005 – December 31, 2011

<table>
<thead>
<tr>
<th></th>
<th>S&amp;P 500</th>
<th>Gold</th>
<th>TIPS</th>
<th>Inflation swaps (as measured by 1-3 year BEI)</th>
<th>Oil</th>
<th>Commodities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correlation</td>
<td>0.16</td>
<td>0.26</td>
<td>0.31</td>
<td>0.74</td>
<td>0.60</td>
<td>0.70</td>
</tr>
</tbody>
</table>

Source: Barclays Capital and J.P. Morgan Asset Management. The Barclays Capital 1-3 year BEI (Breakeven Index) captures the difference between the returns of U.S. TIPS and Treasury Bonds of the same maturity, with a standard maturity breakdown of 1-3 years.
Inflation proofing a portfolio

Inflation swaps transfer, or “swap out,” inflation risk from one party to another. The swap buyer pays a predetermined fixed rate to the swap seller, or counterparty, based on the yield difference between Treasuries and TIPS of the same maturity. This yield spread is referred to as breakeven inflation (BEI) and represents the market’s current expected inflation for the time period covered by the maturity date. In exchange for this fixed rate, the counterparty pays the buyer an inflation-linked payment, usually the CPI rate for the maturity period. This represents the actual change in inflation [see Exhibit 2].

Exhibit 2: How inflation swaps work

Zero coupon inflation swaps at a glance
- The most common and most liquid inflation derivatives in the market
- Linked to CPI, a proxy for inflation that measures price changes in a basket of goods and services
- Offer pure inflation exposure — effectively isolating inflation risk from interest rate risk
- Highly flexible with maturities from one to 30 years to lock in a specific view of inflation
- Far more tax efficient than TIPS
- May help lower portfolio volatility by reducing the uncertainty of inflation risk

These securities typically are priced on a zero coupon basis, with payment exchanged at the end of the term, but a buyer may also choose to sell the contract before maturity on the appropriate exchange or over-the-counter market. If actual inflation exceeds expected inflation, the resulting positive return to the buyer is considered a capital gain. As inflation rises, the buyer earns more; if inflation falls, the buyer earns less [see Exhibit 3].

Exhibit 3: Performance in different inflationary environments
Example assumes portfolio manager (buyer) enters an inflation swap at an annualized rate of 2.0%

<table>
<thead>
<tr>
<th>Hypothetical outcome</th>
<th>Swap result</th>
<th>Portfolio impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflation rate turns out to be 2.0%, same as the fixed rate of the swap.</td>
<td>Portfolio manager breaks even on the swap.</td>
<td>The swap is cancelled out, and the transaction has no value to either party; no impact on the portfolio other than transaction cost.</td>
</tr>
<tr>
<td>Rate of inflation is higher than 2.0%.</td>
<td>Portfolio manager earns a profit on the swap.</td>
<td>Capital gain reflected in net asset value.</td>
</tr>
<tr>
<td>Rate of inflation is lower than 2.0%.</td>
<td>Portfolio manager harvests the loss.</td>
<td>Lower inflation may benefit other areas of the portfolio.</td>
</tr>
</tbody>
</table>
A growing market

The market for inflation-linked derivatives and swaps has grown substantially since their U.S. debut in the early 2000s, with current annual trading volume around $25 billion [see Exhibit 4]. Increased liquidity and transparency have bolstered usage among mutual fund, pension and asset-liability investors as a viable option in the derivatives space to manage inflation. New products, such as caps, floors and options on CPI, are also becoming available, and the outlook remains positive for continued development.

Exhibit 4: CPI trading volume, in USD billions

<table>
<thead>
<tr>
<th>Year</th>
<th>CPI trading volume (USD billions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>$10</td>
</tr>
<tr>
<td>2005</td>
<td>$10</td>
</tr>
<tr>
<td>2006</td>
<td>$6</td>
</tr>
<tr>
<td>2007</td>
<td>$15</td>
</tr>
<tr>
<td>2008</td>
<td>$6</td>
</tr>
<tr>
<td>2009</td>
<td>$18</td>
</tr>
<tr>
<td>2010</td>
<td>$25</td>
</tr>
<tr>
<td>2011</td>
<td>$40</td>
</tr>
</tbody>
</table>

Source: Barclays Capital and J.P. Morgan Asset Management.

Frequently asked questions

“How risky are these securities?”
Like all investments, inflation derivatives involve specific risks that should be carefully evaluated. Although these securities are more complex than typical stock and bond investments, they entail similar liquidity and potential default considerations. These are some of the reasons why investors may want to consider professionally managed portfolios, such as mutual funds, to gain exposure to these inflation-protection securities.

“What happens if the counterparty defaults?”
Just as a bond is subject to default risk, an inflation swap is subject to the risk a counterparty won’t be able to meet its obligations, either because of temporary liquidity problems or more significant structural issues, such as insolvency. The burden falls on both swap buyer and seller to conduct careful due diligence to verify the financial stability of the other. This risk is generally addressed by both parties agreeing to post collateral for the amount due.

“Aren’t these strategies primarily for institutional or affluent investors?”
Mutual funds that invest in inflation derivatives are highly liquid, professionally managed and usually available for low minimum investments, making it easy for individual investors to access the potential benefits of these securities.

“Do these funds involve leverage?”
Inflation swaps are used to hedge against inflation risk and do not entail leverage on their own.

“What should I look for in an investment manager?”
Investors should look for a manager with a proven portfolio track record and a deep understanding of inflation derivative trading and managing counterparty risk.
When to invest

Investors may question whether or not they need an inflation hedge given the benign U.S. inflationary climate over the past several years. The current environment, however, seems to be pointing to rising inflationary pressure and the challenge is that once the threat of inflation begins to grow, the price for inflation protection also usually increases. Since their introduction into the U.S. market, the costs associated with zero coupon inflation swaps have been relatively closely linked to anticipated and actual changes in CPI [see Exhibit 5]. For this reason, it may be prudent to devote at least a moderate portion of portfolio assets to an inflation-hedging strategy at all times. Waiting until a portfolio needs protection may be too late, since higher prices for inflation derivatives translate directly into reduced inflation risk protection.

Exhibit 5: Inflation swap rate vs. CPI
December 1, 2005 – December 31, 2011

![Graph showing the relationship between inflation swap rate and CPI from December 1, 2005 to December 31, 2011.](source: Bloomberg and J.P. Morgan Asset Management.)

Adding inflation derivatives to a diversified portfolio

<table>
<thead>
<tr>
<th>Investment role</th>
<th>Who may benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflation protection</td>
<td>Investors who want to reduce inflation risk but are concerned about the drawbacks of traditional inflation-hedged strategies, such as commodities or TIPS</td>
</tr>
<tr>
<td>Expand diversification</td>
<td>Investors who want to lower overall risk by adding non-correlated assets</td>
</tr>
<tr>
<td>Combine with tax efficient income strategies</td>
<td>Investors interested in increasing the after-tax, net inflation real returns of income-generating portfolios</td>
</tr>
</tbody>
</table>
An intermediate bond strategy with an inflation overlay

Typical bond funds may leave investors vulnerable to inflationary pressures. This fund combines a core portfolio of primarily investment-grade fixed income securities with inflation-hedged strategies, seeking to maximize inflation-protected returns.

**The problem:**
Even modest inflation can erode fixed income performance

**The solution:**
JPMorgan Inflation Managed Bond Fund
Share class/Ticker: A JIMAX  C JIMCX  S JRBSX
Seeks to:
• Capture performance from a diversified bond portfolio generally composed of higher-yielding spread products
• Protect total return from inflation risk

**The strategy:**
• Core bond-type investment style with inflation protection
• Managed for tactical inflation protection, including yield curve positioning

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Tax-exempt income with tax-efficient inflation protection

Some funds offer tax-exempt income. Some guard against inflation. This portfolio strives for both by combining high-quality municipal bonds with an inflation hedge designed for tax efficiency, seeking higher return potential after taxes and inflation.

**The problem:**
Taxes and inflation, two constant threats to real return

**The solution:**
JPMorgan Tax Aware Real Return Fund
Share class/Ticker: A TXRAX  C TXRCX  S TXRSX
Seeks to:
• Capture tax-advantaged performance from a diversified municipal bond portfolio offering tax-exempt income
• Protect after-tax return from inflation risk

**The strategy:**
• Inflation protection on top of municipal bonds
• More tax efficient than TIPS
• Managed for tactical inflation protection, including yield curve positioning

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“We use inflation derivatives in these portfolios as a vehicle to hedge against inflation risk. Bonds are sensitive to inflation because generally bond yields increase with inflation expectations as investors demand higher risk premiums for inflation risk. When yields go up, bond returns go down. Zero coupon inflation swaps enable us to ‘hedge out’ the risk of inflation without having to buy inflation-indexed bonds, which require far greater capital and may generate unfavorable tax consequences.”

— Deepa Majmudar
Executive Director and Portfolio Manager
Spotlight on: Inflation derivatives

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Selected Fund Risk:

Inflation Managed Bond Fund: The fund’s investments in bonds and other debt securities will change in value based on changes in interest rates. If rates rise, the value of these investments generally drops. The fund’s investments are subject to the risk that a counterparty will fail to make payments when due or default completely. The fund’s investment strategies may not work to generate inflation protected return. There is no guarantee that the use of derivatives and debt securities will mimic a portfolio of inflation-protected bonds. The fund may have significant exposure to derivatives. Derivatives may be riskier than other types of investments because they may be more sensitive to changes in economic and market conditions and could result in losses that significantly exceed the Fund’s original investment. There can be no assurance that the inflation index used will accurately measure the actual rate of inflation. These securities may lose value in the event that the actual rate of inflation is different than the rate of the inflation index.

Tax Aware Real Return Fund: Because this fund primarily invests in bonds, it is subject to interest rate risks. Bond prices generally fall when interest rates rise. The fund’s tax aware strategies may reduce the amount of taxable income that you recognize as a result of your investment in the fund but will not eliminate it. These strategies may require trade-offs that reduce pre-tax income. The fund has the ability to invest in municipal securities, the income from which is exempt from federal income tax. The risk of a municipal obligation generally depends on the financial and credit status of the issuer. For some investors, income may be subject to the Alternative Minimum Tax. Capital gains, if any, are federally taxable. Income may be subject to state and local taxes. The fund may be subject to the risk that its inflation-linked derivative contracts will be with a limited number of counterparties. This may result in certain concentration risk, including counterparty liquidity, deflation and pricing risk. The fund may invest in futures contracts and other derivatives. This may make the fund more volatile. The derivative positions are not included in the holdings-related calculations.

Past performance is not indicative of comparable future results. Diversification does not guarantee investment returns and does not eliminate the risk of market loss.

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