In an attempt to provide guidance about some of these unknowns—How likely is higher inflation? When will it materialize? And how does that affect tactical and strategic portfolio allocations?—J.P. Morgan Asset Management conducted an interactive webcast on September 10, 2009 featuring a panel of in-house investment professionals. Each discussed investment implications and options to protect against inflation from their respective areas of expertise: global markets and economies, fixed income, real assets and commodities. Highlights follow...

1. Inflation and the Global Markets Outlook

- Long-term risk—Inflation sparks begin to fly and monetary fuel feeds the fire
- Commodities are the most likely catalyst; interest rates are the key to containment
- Inflation control remains the answer to the long-term economic and market outlook

Inflationary tinder

With the economy still weak and labor markets depressed, inflation is unlikely to flare up in the near term. But, 100 years of history has shown that inflation typically bounces back after protracted periods of exceptionally low inflation or deflation. Why? More often than not it has been the result of policymakers taking their eye off the inflation ball, in an effort to address high unemployment. Once unleashed, inflation has fluctuated wildly; the ’70s are a perfect example.

Worrisome signs have begun to heighten inflationary concerns; increasing commodity prices and a weakening dollar are good examples. And, as Alan Greenspan points out, an abundance of reserves supplied by the Fed is waiting to become inflationary tinder. The situation clearly bears watching—for signs that inflation may be heating up or that policymakers and the markets are not adequately responding to the sounds of their smoke detectors.
Inflation: Investment Risks and Possible Coping Strategies

Sparkling inflation
In our view, wages are not a likely inflation catalyst. In the past, labor’s strong bargaining power kept wages growing rapidly, even as other price components rose and fell. Today, with wage inflation incredibly contained and labor markets continuing two decades of quiescence, labor costs should remain a benign component. Commodities, we believe, are more likely to lead on the inflation front; the question is whether these price increases will feed through to continued, more generalized inflation (as they did in the ’70s, but have not done in more recent decades).

Keeping inflation in check
Whether commodity’s leading edge is translated into continued higher inflation will depend largely on two factors—currency and interest rates, with rates likely to be the ultimate determinant.

In the case of currencies, history makes it clear that when the dollar trends higher, inflation generally moves down…and vice-versa. It’s not clear which is the chicken or the egg, but one thing is apparent: if inflation is allowed to take root, it won’t be good for the dollar and, if the dollar weakens, it won’t help keep the lid on inflation.

It is interest rates, however, that can keep everything in check. Consider the relationship among inflation (Core CPI), Fed policy and bond yields, seen in Exhibit 1. In the 70’s, inflation led the way, with Fed policy too slow to head it off and the bond market even further behind. It was not until Paul Volcker aggressively tightened monetary policy in late ’79 that the bond market woke up. Since then, bond investors have been more sensitive to inflation risks and more demanding of compensation for taking them on—perhaps until now. In our view, if we are going to contain potential inflation, then bond yields will have to rise as inflation risks grow. This will be essential to maintaining global investor confidence in the dollar and the potential for real return on invested capital … and ultimately for allowing the U.S. to finance its mega deficits and sustain long-term growth.

Inflation: Still the answer
As always, inflation remains the answer to every question about the long-term outlook for the economy and markets. Investors’ inflationary concerns are well-placed. Commodity price increases, dollar weakness, a declining appetite for Treasuries on the part of foreign investors—these call for a watchful eye and deliberate response on the part of policymakers and the bond market, should there be evidence that inflationary sparks are getting too close to the tinder box.

EXHIBIT 1: INTEREST RATES VS. INFLATION

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<th>65</th>
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<td>Change vs. Year Ago (%)</td>
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Source: J.P. Morgan. Past performance is no guarantee of future results.

2. Inflation and Fixed Income

- TIPS are not always a “pure” inflation hedge
- Understanding expected inflation is key
- Derivatives target “Break-even Inflation”

Since their debut in 1997, U.S. Treasury Inflation Protected Securities (TIPS) have become the default option to guard against possible inflation. But these investment vehicles have not proved to be a perfect hedge, perhaps because of a correlation between market views of real rates and inflation expectations. This has prompted investors to consider “break-even inflation” strategies, such as inflation swaps, to provide a purer inflation hedge.

TIPS: Not immune to changes in nominal rates

The now commonly understood linkage between nominal interest rates and inflation was expressed over 100 years ago by the noted economist Irving Fisher, in his eponymous equation:

\[
\text{Nominal Interest Rate} = \text{Real Interest Rate} + \text{Expected Inflation Rate}
\]
In other words, the Fisher Equation states that a nominal interest rate (the rate received on a conventional nominal Treasury bond) approximately equals the real interest rate (or inflation-adjusted rate) plus the expected rate of inflation. The implication is that when inflationary expectations rise, nominal rates also rise and the prices of nominal bonds fall. What that means in practice is that bonds may underperform relative to inflation.

Of course, TIPS are designed to provide exposure to real interest rates and pay a coupon tied to the actual rate of inflation. But TIPS in practice may fall short as an inflation hedge when inflationary expectations race ahead of realized inflation rates. That’s because widespread anticipation of coming inflation could depress fixed income prices across-the-board, including prices on TIPS (which are only geared to hedge against actual inflation).

So while TIPS, in theory, remove inflation risk by adjusting to actual inflation rates, their prices are correlated with nominal rates. This is primarily an issue when TIPS are not held to maturity or are in a portfolio where they are marked-to-market. History shows us that TIPS returns and actual inflation rates (as measured by the change in CPI) have a correlation of under .35—hardly a perfect hedge (Exhibit 2).

### EXHIBIT 2: TIPS AND NOMINAL BONDS HAVE LOWER CORRELATIONS TO CPI THAN TO BEI*

<table>
<thead>
<tr>
<th>Y/Y return correlations to CPI</th>
<th>TIPS</th>
<th>Global Linkers</th>
<th>1-3y BEI</th>
<th>BEI Index</th>
<th>Gold</th>
<th>Oil</th>
<th>CHB Index</th>
<th>GSCI</th>
<th>S&amp;P</th>
<th>Short-Try</th>
<th>AUD, CAD, NZD, NOK</th>
</tr>
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</table>
| Source: Barclays Capital. The above chart is based on data from 1997, when the US TIPS market was introduced. * BEI = Break-even Inflation.

#### Break-even inflation: A better hedge

In our view, “break-even inflation” (BEI) may be a better foundation than TIPS for inflation protection. BEI is calculated by determining the difference in yield between nominal and inflation-indexed securities of the same maturity. For example, if the yield on a 10-year nominal U.S. Treasury bond is 3.4% and the yield on a 10-year TIPS is 1.6%, the difference in yield, or BEI, is 1.8%. This can be interpreted as the market’s expectation that actual inflation over the next 10 years will be about 1.8% annually. As seen in Exhibit 2, the correlation of BEI to actual changes in CPI is considerably stronger than the correlation between TIPS returns and changes in CPI. Therefore, a “purser” inflation hedge can be implemented by:

- buying TIPS and selling nominal Treasuries (using futures), or
- entering into inflation swaps (a large and growing market)

Exhibit 3 provides an example of how a CPI swap derivative works as an inflationary hedge. It shows how an investor can gain inflation protection by buying a swap in which the buyer agrees to pay a fixed rate based on the current break-even inflation rate and receive the actual inflation rate over the term of the swap. Returns are dependent on changes in the rate of inflation, and unaffected by changes in the market price of TIPS.

### EXHIBIT 3: HOW A CPI SWAP WORKS

Consider an investor with a portfolio that is negatively impacted when inflation rises. That investor may buy an inflation swap to help protect the portfolio in an inflationary environment. Using our earlier example, the investor could enter into a swap, agreeing to pay a fixed rate of 1.8% (the BEI) and receive the actual rate of inflation. If the actual inflation rate turns out to be 1.8%, the buyer would break even on the swap. But if the actual rate of inflation is above 1.8%, the buyer would earn a profit on the swap; if lower than 1.8% the buyer would incur a loss (of course, lower inflation should benefit other areas of the portfolio).
To be sure, swaps represent a leveraged position and as such involve counterparty risk, above and beyond changes in CPI.

The CPI derivatives market began to take off in 2004 and has grown to some $40–50 billion in stock outstanding today, despite a temporary retrenchment in 2008. Higher trading volumes have produced a more balanced pool of investors, improved liquidity, tightened bid-ask spreads and moderate-sized swap transactions. Hence, swaps have become an increasingly viable option in the derivatives space for institutional investors looking to manage their inflation risks.

3. Inflation and Real Assets

- Asset values likely track inflation-sensitive replacement costs over the long term
- Capacity utilization rates affect inflation sensitivity in the short run
- Infrastructure appears likely to provide some near-term inflation protection

Inflation is not always kind to fixed income investments, but there are other types of income-producing assets that may fare better when the CPI ticks higher and higher, including commercial real estate, infrastructure, shipping, timber, and even farmland. But it’s important to understand that how these real assets perform amid inflation depends on several key factors. It’s also useful to make a distinction between conditions in the short run, say two or three years, and the long term.

Let’s start with the long term. Over time, prices of materials and labor increase with inflation. Consequently, replacement costs for tangible assets such as buildings, toll roads and airports follow inflation, and asset values tend to track these replacement costs. To be sure, assets may trade for more or less than replacement costs at a point in time, but for long-term investors, these investments offer solid prospects for keeping pace with inflation.

“Pass-through” provisions and excess capacity

How these assets respond to a near-term flare up in inflation depends critically on two factors: (1) contractual provisions that allow asset owners to pass through inflation, at least in part, through higher unit prices (rents, tolls, etc.) and (2) the presence or absence of slack or excess capacity. These factors drive the near-term inflation sensitivity of income streams produced by real assets.

Examples of contractual provisions include, among others, building leases that allow landlords to pass increases in operating expenses directly to tenants, and concession agreements (to operate infrastructure assets) that specifically use inflation to determine allowable price increases. Moreover, periodic regulatory reviews, for utilities for example, typically allow positive real returns, covering all costs including inflation.

Of course, while contractual provisions may permit and even facilitate price increases, the existence of excess capacity in a sector can make it difficult to increase earnings when inflation heats up. Consider commercial real estate (CRE). In periods when the U.S. economy has experienced high inflation, CRE historically has appreciated in a way that offered investors a safe haven of sorts (Exhibit 4). What’s more, commercial property has done well, not only when inflation levels were high, but also when the pace of those price gains was accelerating.
Infrastru...e cycles
Currently, accelerating inflation is viewed less as an immediate risk and more as a concern several years out. That view is buttressed by excess capacity that exists today in labor markets, industrial production and commercial real estate. Relatively elevated vacancy rates suggest that CRE would be unlikely to hedge a negative inflation surprise today or tomorrow. But investors who would like to add some inflation protection to their portfolios might find property values, which are in many cases below replacement costs, attractive today, in contrast, demand for services produced by developed infrastructure appears less sensitive to economic cycles than CRE demand. As a result, we believe infrastructure cash flows currently have more potential for favorable near-term inflation sensitivity.

4. Inflation and Commodities

- Commodity prices historically have been closely linked to inflation
- But commodities offer more than potential inflation hedging
- Investors should be aware of commodity-specific risks and differences

Commodities are often viewed through the prism of inflation since they tend to rally when price gains accelerate in the broader economy. While we believe that remains true, for reasons discussed below, there is also a strong case to be made for incorporating a basket of these resource-related investments as a strategic portfolio allocation (1) to hedge against a potentially weaker dollar, (2) to take advantage of inflationary pricing trends near-term and (3) to diversify exposure versus other asset classes. At the same time, commodities don’t always trade in lock-step with one another, so it is important to consider specific risk factors such as shifts in demand and supply and liquidity risks.

Generally speaking, there has been an asymmetric relationship between commodities prices and inflation over the past 30 years. In almost all cases when CPI has spiked, commodities also rallied and thereby afforded investors protection. In some cases—but not always—commodity price gains have actually presaged more widespread increases in CPI (Exhibit 5). The flip side is that commodity prices have not necessarily weakened in periods of falling prices. Indeed, gold prices often rose in the past when inflation fell, especially if falling prices emerged hand-in-hand with lower equity values.

Beyond inflation, we view commodities as an attractive investment in a number of other ways. For example, prices of commodities tend to stand up to declines in the dollar. Amid mounting concern about the potential for dollar weakness due to excess liquidity from U.S. fiscal and monetary stimulus measures, commodities may provide a hedge vis-à-vis other dollar-denominated assets. Gold, in particular, historically has had an inverse pricing relationship to the dollar’s strength. What’s more, commodities offer an opportunity to benefit from reflation because their prices are closely linked to industrial production trends. This stems from the fact that commodities usually benefit from the short-term surge in “replacement demand” that normally follows a protracted recession.

Lower correlations, higher volatility
Most important, perhaps, commodities have had a low rate of correlation with “core” portfolio assets such as equities and bonds over the past three decades, which makes them attractive from the standpoint of diffusing risk factors within a portfolio. To the extent that commodities “zig” when other assets “zag,” they may cushion portfolios from a broad downturn in stocks, bonds, real estate and other alternative investments.

While commodities may outperform other asset classes in a variety of environments, they are also subject to higher volatility than more traditional equity and fixed income investments. Moreover, not all commodities are alike, so it is important to

Exhibit 5: Commodity vs. Consumer Price Inflation

Source: J.P. Morgan. Past performance is no guarantee of future results.
consider a number of variables affecting specific markets, such as liquidity, supply and forward curves. For some less-liquid commodities, ease of exit has been an issue amid periods of heightened volatility. On the demand side of the equation, a double dip in the U.S. economy or an unexpected downturn in China would likely depress prices, especially for resources where supplies are relatively more ample (such as base metals outside of copper). Finally, commodity forward-price curves need to be considered. In the case of natural gas, for instance, forward prices were discounting in September 2009 a 100% price rise in the coming year.

Focus on supply and demand
Taking those risk factors into account, we favor commodities that we believe to be poised to benefit from higher demand yet are subject to some form of supply constraints, including copper, gold, oil, and platinum. And from a valuation and supply standpoint, agricultural commodities look attractive to us since fertile land is finite, global population growth shows no signs of slowing down and many bulk food items are trading close to 20-year lows.
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Real estate and infrastructure investing may be subject to a higher degree of market risk because of concentration in a specific industry, sector or geographical sector. Real estate and infrastructure investing may be subject to risks including, but not limited to, declines in the value of real estate, risks related to general and economic conditions, changes in the value of the underlying property owned by the trust and defaults by borrower.

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