

Time to Get Real About Real Assets

2014

Why do investors have real assets in their portfolios? The usual answer is to hedge against inflation. However, given recent muted inflation levels globally and the poor performance of common inflation hedges, many investors are increasingly questioning why they hold any real assets at all. In the end, we believe real assets deserve a place in portfolios, but one broader than “an inflation hedge.” Real assets should be owned to drive growth, income, or diversification in portfolios, but not solely for their perceived sensitivity to inflation.

Recent macroeconomic events have complicated holding real assets. The rise and fall of China’s appetite for commodities, quantitative easing, and the almost constant prospect of hedonic adjustments to government inflation measures that seem to consistently lower reported inflation have impacted the performance of asset classes thought to be inflation hedges and increased uncertainty about the timing and magnitude of any future inflation. As always, investors need to be prepared for a world of low, persistent inflation—essentially the “targets” established by central banks in recent years—and a sharp, unanticipated, and sustained spike in inflation, *à la* the 1970s in the United States and the United Kingdom or the late 1980s and early 1990s in Brazil. Our post-1971 fiat currency world is displaying some of the early characteristics of prior currency wars as central banks race to debase their respective currencies, further impacting holding assets solely for inflation protection.

Eric Winig
Managing Director

Meagan Nichols
Managing Director

Urosh Milojkovic
Investment Associate

While investors should take the threat of a sudden, sustained inflation spike into account when allocating their portfolios, we question whether it is possible to build an inflation-hedging allocation that is worth the opportunity cost, particularly given the uncertain ability of these assets to serve as a hedge. The opportunity cost of assets in a traditional inflation-hedging allocation—typically some mixture of commodity futures, REITs, Treasury Inflation-Protected Securities (TIPS), public natural resources equities, and private investments in various real assets—can be extremely high in periods of low inflation. For example, from 1982 through the end of 1999, \$100 invested in US equities would have grown to over \$1,200, compared to \$242 for commodities; \$100 invested in gold, meanwhile, would have been cut in half (Figure 1). Further, it is unclear how much protection such assets will offer during an inflation spike. While commodities provided very strong returns in the 1970s, this was largely a function of solid roll and collateral yields—real *price* appreciation was far more muted. Bluntly put, investors that hold real assets as inflation hedges are in effect paying a high opportunity

cost for an insurance policy with an uncertain payoff.

The bottom line is that investors should move away from the idea of an “inflation hedge” as a permanent part of the portfolio, and instead evaluate whether to hold real assets in much the same way they evaluate other investments (i.e., as growth, income, or diversifying assets with the potential to hedge inflation in certain circumstances). We do view inflation as a threat, but question the efficacy of a traditionally structured inflation-hedging allocation to protect against it.

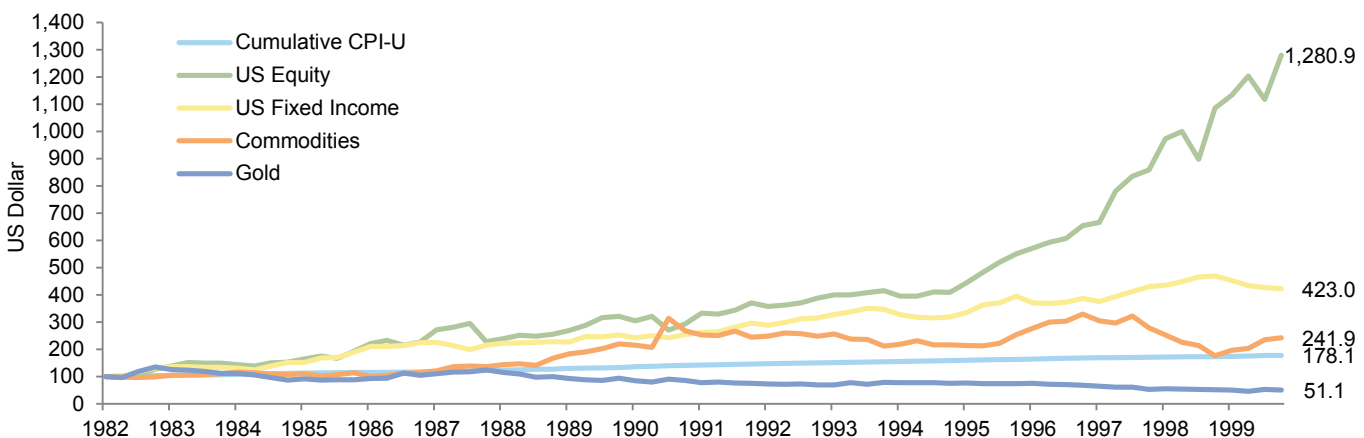
Inflation Hedging—Rise of the Optimizers

From one perspective, the prevalent role of commodities and natural resources equities in inflation-hedging allocations (Figure 2)¹ owes to a number of factors that came together about a decade ago. First, the tech bust soured many investors on equities, at least temporarily, making

¹ As shown, commodities and natural resources equities make up about 50% of the total allocation, and an even higher percentage when less-liquid private investments are excluded. While these less-liquid private investments are generally included in the real assets allocation, they are not expected to support spending during an inflation spike.

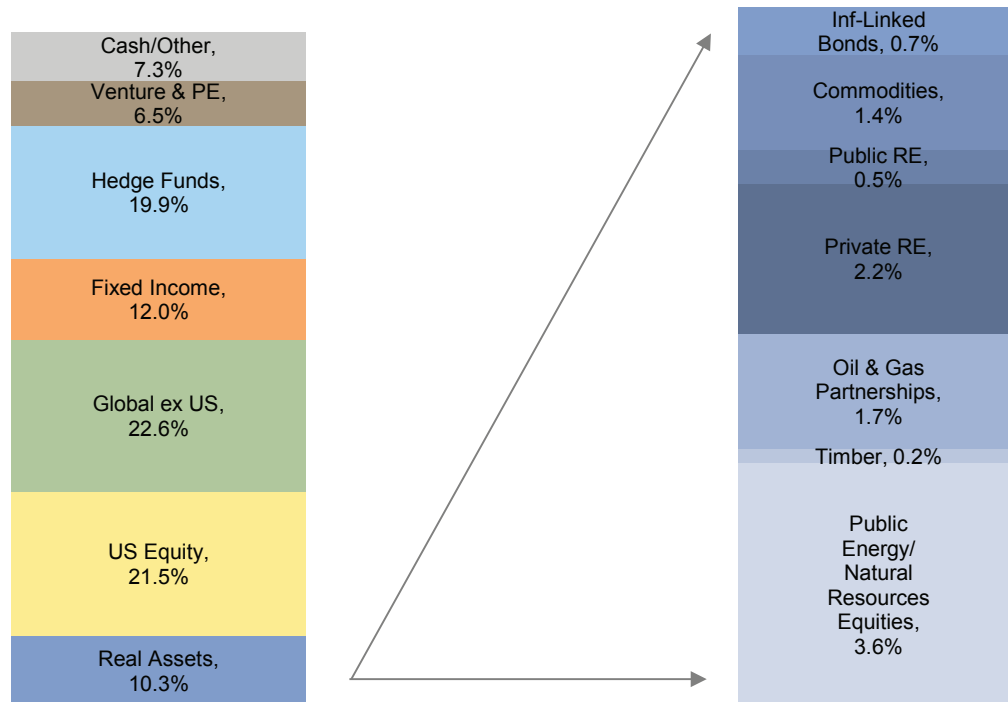
Figure 1. Opportunity Cost of Inflation Hedges

First Quarter 1982 – Fourth Quarter 1999 • Returns in real terms rebased to 100 at March 31, 1982

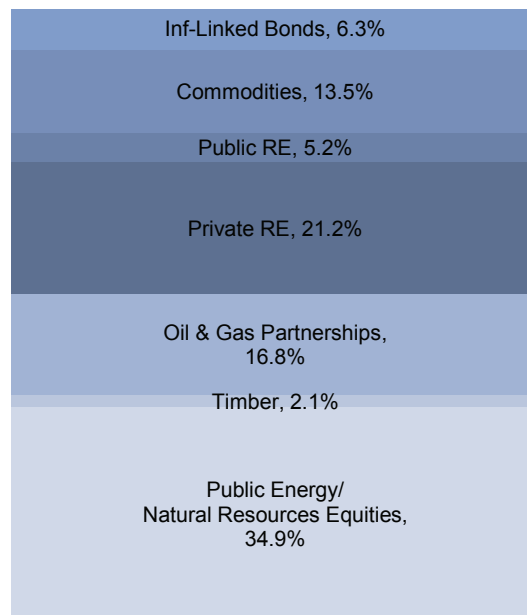


Sources: BofA Merrill Lynch, Citigroup Global Markets, Standard & Poor's, Thomson Reuters Datastream, and US Department of Labor - Bureau of Labor Statistics.

Figure 2. Asset Allocation of Nonprofit Institutions
As of December 31, 2013



Real Assets Breakdown



Source: Cambridge Associates LLC.

Note: Institution universe comprises 446 nonprofit C/A clients, with assets ranging from \$8 million to \$40 billion.

them open to other investment alternatives. Second, commodities began to emerge from a two-decade bear market, driven by (in no particular order) rising demand from China, central bank money printing to combat the effects of the tech bust, and a dearth of supply in many commodities due in large part to the bear market itself. Third, back-tested data showed that commodity allocations, implemented through futures, were a historically strong diversifier²—so good, in fact, that users of “optimizers” had to cap commodity exposure, as the optimizer would always recommend the maximum available allocation. And finally, while many institutional investors held a permanent allocation to long-dated sovereign bonds as a deflation hedge, they had nothing comparable for inflation.

Another perspective is that inflation is one of the major risks to an equity-dominant portfolio and investors should consistently hedge against it. However, inflation-hedging allocations have always been difficult and somewhat unfocused, with their efficacy in a true inflationary scenario not only uncertain, but largely untested. The only instance of a sharp, sustained inflation spike in the United States for which we have reliable data is the 1970s, and the differences in markets then versus today—while REITs existed, the vast majority were mortgage REITs, and there were no TIPS or (for most of the period) oil futures—make comparisons difficult at best. While an optimist might argue the lack of data prevents an investor from making errors

² See, for example, *Facts and Fantasies about Commodity Futures*, by Gary Gordon and K. Geert Rouwenhorst (June 2004), which stated: “While the risk premium on commodity futures is essentially the same as equities, commodity futures returns are negatively correlated with equity returns and bond returns.... In addition, commodity futures are positively correlated with inflation, unexpected inflation, and changes in expected inflation.”

A Note on Geography

This paper is primarily focused on US investors, mainly because they have been the most active adopters of “inflation-hedging” allocations as described herein. Also, unlike many non-US investors, they have little experience with truly destabilizing inflation. While US investors may remember the 1970s as remarkably challenging, the decade pales in comparison to inflation experienced elsewhere, where financial assets have basically become worthless. Investors are likely familiar with some of the most extreme stories—the Weimar Republic, Hungary, Austria, Argentina, Brazil, and most recently Zimbabwe—but many countries have also experienced high but not hyperinflation. Among developed nations, the most severe bout of inflation in recent times was that of the United Kingdom during the 1970s when the Retail Price Index averaged 13% a year, peaking in 1975 at 25%. Investment portfolios were clobbered, with UK equities posting a real average annual compound return (AACR) of -2.4%, and UK bonds, -4.3%.

Investors outside the United States tend to be more forgiving of opportunity costs associated with real assets—many families hold more than 10% of their total assets in gold bullion as a store of value—given their understanding of the difficulty of protecting against such periods. Non-US investors are also more likely to diversify among currencies than their US counterparts; in fact, the most historically effective strategy for protecting against high/hyperinflation is to get one’s money out of the country (to the extent this is possible given capital controls, etc.).

Our conclusions for non-US investors are similar to those for US investors—short of stocking one’s portfolio with physical gold, there is little one can do to protect against rampant currency debasement, and what options are available (including gold) feature substantive opportunity costs and, in many cases today, elevated price risk. While international diversification has provided a relatively painless hedge against high inflation over the past century or so, and could conceivably do so again, we do not consider this to be a *fait accompli* given today’s fiat currency world and increasingly activist central banks—in a truly global currency war there would be no place to hide.

of induction³ common to the financial world,⁴ it also creates a situation where investors are, to a large degree, flying blind, more or less guessing which assets will appreciate in a particular scenario.

What Are You Trying to Hedge?

Investors often talk about “inflation” without really defining what they mean, likely contributing to confusion around decisions to allocate to real assets. We will avoid the debate about how best to define inflation—as well as whether or not it is systematically underreported by government agencies—and accept the common definition of an increase in prices, as measured by the CPI (i.e., a decline in purchasing power). We also largely leave aside the question of what “causes” the inflation, except in cases where it is directly relevant to investment returns.

As we see it, there are at least five possible inflationary scenarios:

1. Low but stable inflation/disinflation
2. Sharp but short inflationary spike
3. 1970s redux—i.e., sharp, unexpected and sustained inflation spike alongside poor economic growth
4. Inflationary boom
5. Hyperinflation

In scenarios 1, 2, and 4 we would expect equity-dominant portfolios to perform at least adequately due to equities’ built-in inflation hedge over time as companies—particularly high-quality ones—can pass on cost increases

to some degree. For hyperinflation, meanwhile, there simply is no appropriate hedge.⁵

We are today primarily concerned with the third scenario, which would likely impair both equity *and* bond markets while driving up the prices of goods and services, forcing investors to sell assets at depressed prices to pay for rising spending. In the 1970s this scenario had disastrous results. The average US endowment, after spending, lost a stunning 50% of its value in real terms during 1973–81. Simply *maintaining the value* of an investment portfolio during this period would have required an allocation to real assets (real estate, commodities, and gold) of more than 50%. Few investors are willing or able to hold such outsized allocations. Further, the opportunity costs associated with doing so while waiting for inflation to arrive can be enormous. Of course, the same can be said regarding deflation-hedging allocations. An investor would have had to hold a similar allocation to high-quality, intermediate- to long-duration sovereign bonds to maintain portfolio values during the Great Depression. As a result, most investors have determined they cannot take the opportunity cost of maintaining portfolio values and have instead sought to mitigate the risk of permanent loss by trying to hold adequate protection to support cash flow needs, a far smaller allocation. Trying to match this effort on inflation protection is far more challenging.

The most common holdings in a typical inflation-hedging allocation are commodities, REITs, inflation-indexed securities (e.g., TIPS), natural resources equities, gold, and private investments (energy, mining, real estate, timber, agriculture,

⁵ While some claim investors that “held on” during hyperinflations eventually recouped their losses, this assumes an investor has the fortitude and wherewithal to do so—no easy feat when the price of goods and services is rising by double-digit percentages every month even as asset values are plunging.

³ Assuming the future will resemble the past.

⁴ For a recent example, consider the erroneous forecasts by numerous economists in 2006–07 that US house prices would never fall on a national basis since they never had.

infrastructure). Unfortunately, none is a silver bullet; each asset class has notable drawbacks as a pure inflation hedge. Commodities, for example, no longer benefit from the structural tailwinds of positive roll and collateral yields that helped generate strong returns during the US inflation spike in the 1970s. And while REITs and TIPS may be useful as income generators, they are highly unlikely to cover an institution's spending needs in today's low-yield environment. Natural resources equities, meanwhile, are often thought of as a commodity substitute, but tend to track equity markets far more closely than they do inflation. Based on inflation betas—which are highly unstable and unpredictable (Figure 3)—gold and private oil & gas investments may appear the most promising candidates to offset losses in other parts of an

investor's portfolio, but both suffer from a cash-flow problem—gold has no income stream, and private investments are difficult to liquidate and may not generate distributions when equities are under stress.

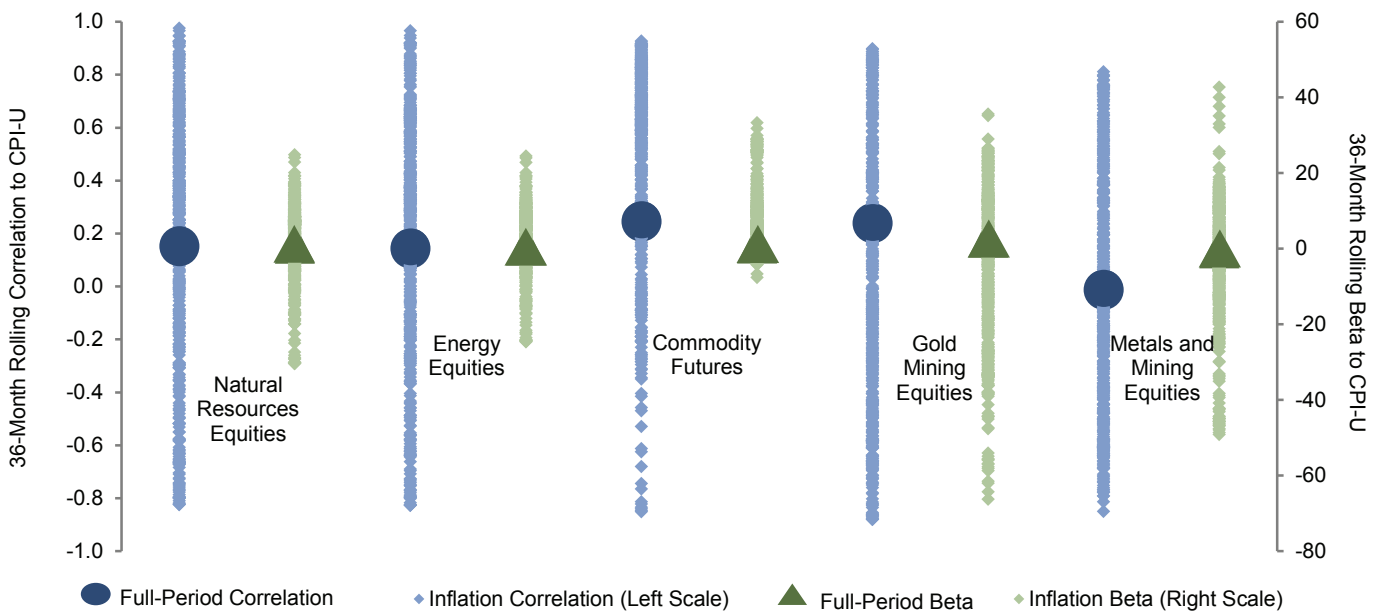
Let's look at each asset class individually.

Commodities

On the surface, commodities seem an obvious choice to hedge inflation. Commodity prices make up, directly and indirectly, a substantial percentage of most consumer price indexes (Figure 4), making it seem likely a rising CPI would entail rising commodity prices as well.

However, things are never so simple. While commodity prices are likely to rise along with consumer prices, they are far less likely to rise in

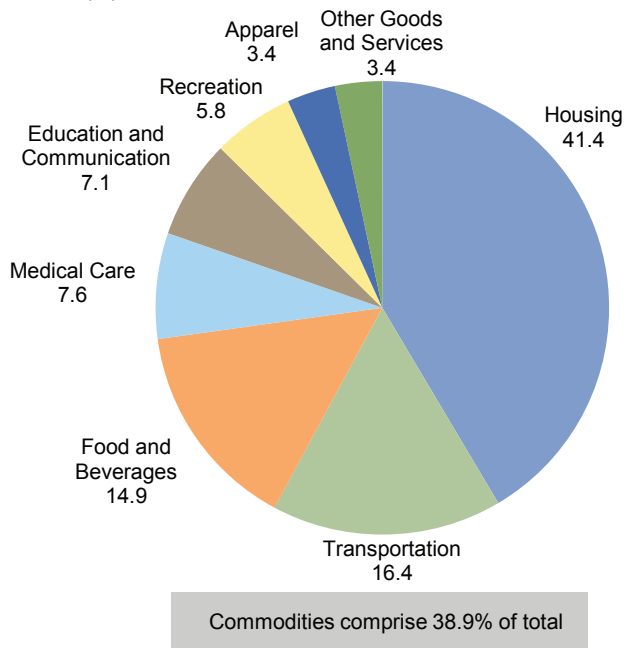
Figure 3. Beta and Correlation of Selected Assets to CPI-U
February 28, 1973 – March 31, 2014



Sources: Dow Jones & Company, Inc., MSCI Inc., Standard & Poor's, Thomson Reuters Datastream, and US Department of Labor - Bureau of Labor Statistics. MSCI data provided "as is" without any express or implied warranties.

Notes: Natural resources equity returns are composed of 80% Datastream World Oil & Gas Index and 20% Datastream World Mining Index from February 28, 1973, through December 31, 1998, and the MSCI World Natural Resources Index from January 31, 1999, through present. Commodity futures returns are composed of S&P GSCI™ from February 28, 1973, to January 31, 1991, and Dow Jones-UBS Commodity Index from February 28, 1991, through present. Rolling 36-month correlation is calculated using 12-month rolling total return. Energy equities are represented by the Datastream World Oil & Gas Index. Gold mining equities are represented by the Datastream World Gold Mining Index. Metals & mining equities are represented by the Datastream World Metals & Mining Index.

Figure 4. CPI-U Component Weights
Percent (%)



Source: US Department of Labor - Bureau of Labor Statistics
Note: Reflects 2011–12 component weights, the latest available.

real terms (Figure 5). The expected real return for commodity prices over time is zero at best, as technological advances push down the cost of growing, mining, harvesting, etc. While this is not true in the case of commodities with a finite supply such as oil, the old truism that “the cure for high prices is ... high prices” has been borne out over time. Even with oil, the issue of substitution exists where, for example, high prices make feasible extraction of otherwise uneconomical reserves such as tar sands. While it might be reasonable to expect spot commodity prices to provide some protection during an inflation spike by rising in nominal terms, investors should not expect positive real returns.

Further, as we covered at length in a recent paper,⁶ the flocking of institutional investors to commodity futures products, along with the Federal Reserve’s zero-interest-rate policy,

⁶ February 2012 Market Commentary *Commodities: Sitting Out the Next Round?*

has changed the dynamics of this investment. Commodity futures provide returns through three avenues: spot price return, collateral yield,⁷ and roll yield.⁸ While most people likely think of spot prices as the driving factor in returns, this has not been the case. From 1970 through 2000, the most reliable provider of returns on commodity futures investments was collateral yield (Figure 6). When optimizers got wide-eyed at the “diversification benefit” from commodity futures in the early 2000s, they were primarily seeing T-bill returns. Spot price returns, which contributed meaningfully to the performance of commodities during the 1970s, were actually a net drag during the 1980s and 1990s, while roll yields went from being a solid contributor in the 1970s and 1980s to a slight detractor in the 1990s. The shape of the commodity curve and available roll yield can and often do swamp the spot price movement of a given commodity over time.

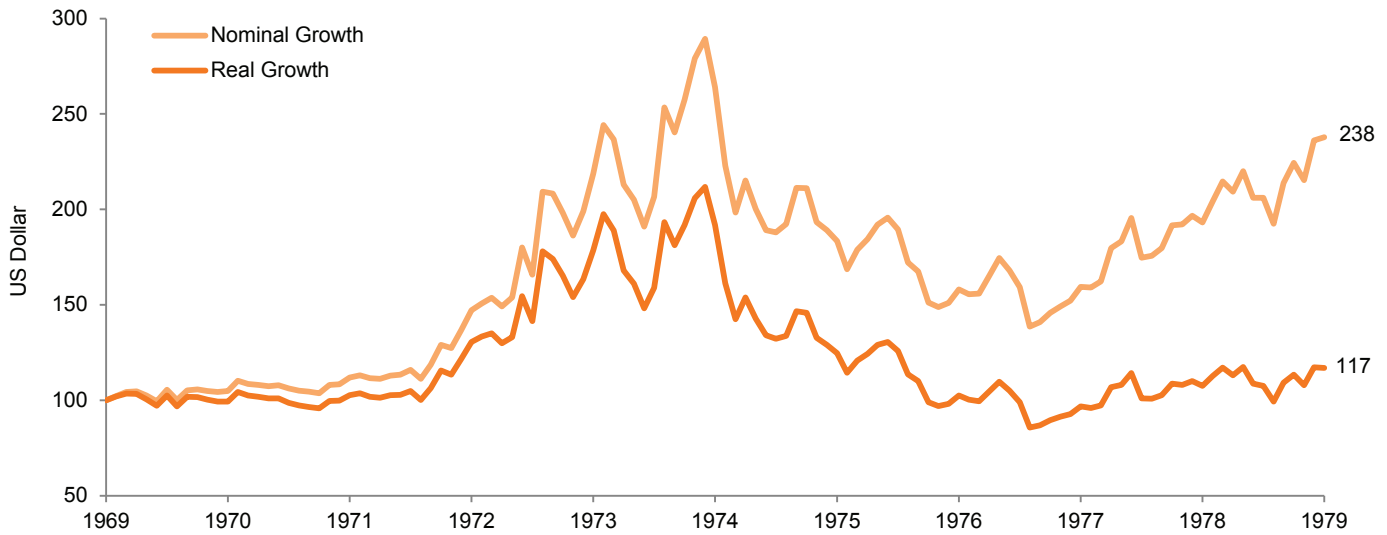
While it is true commodities provided solid returns in the 1970s, there are a few caveats. First, commodities’ total return in the 1970s was a combination of all three factors, as high interest rates provided solid collateral returns, while most futures markets were in backwardation, providing meaty roll yields. Neither of these holds true today—collateral yields are effectively zero, while roll yields have for some years been a meaningful *drag* on returns thanks to contango in many futures markets, although this has abated a bit of late (Figure 7). The second (related) caveat is that these are *nominal* returns. While spot prices rose a seemingly

⁷ Fully collateralized commodity futures require investors to buy only 10% of the nominal amount; the collateral is typically held in T-bills.

⁸ Roll yield is the return accrued by “rolling” the current month future into the next month. For much of their early history, many commodity futures markets were in “backwardation,” with prices lower in the future; thus, selling the current month and buying the next month provided a source of return. A positively sloped curve is referred to as contango.

Figure 5. S&P GSCI™ Spot Returns

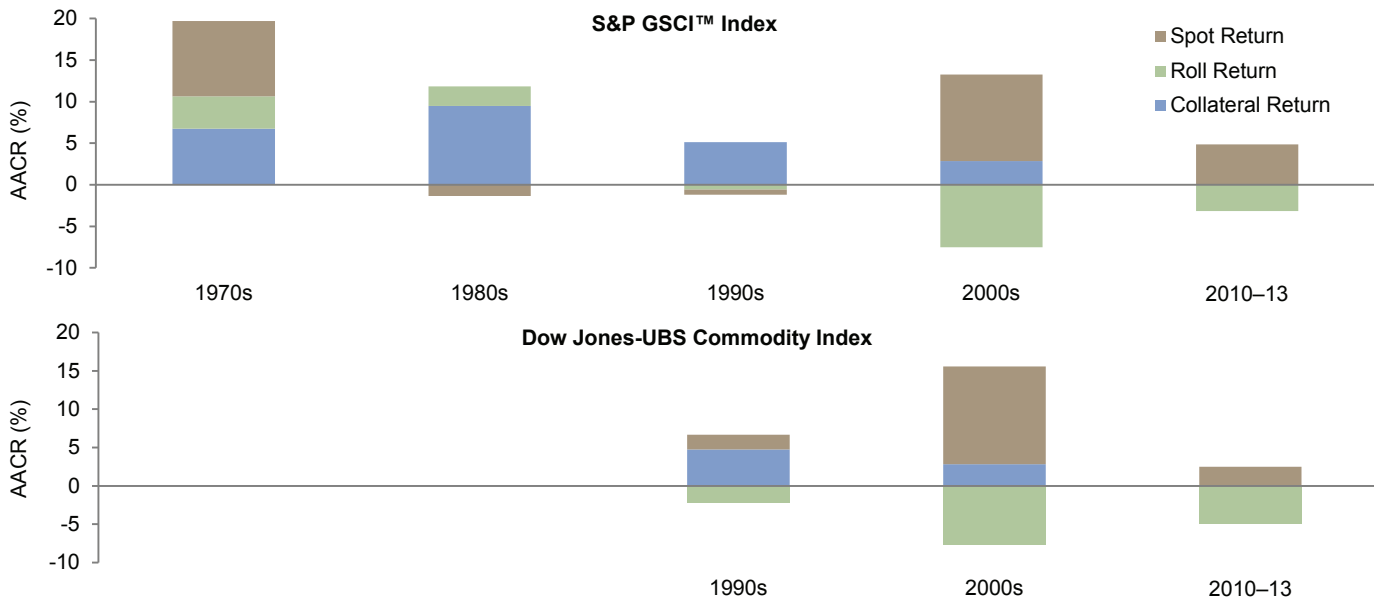
December 31, 1969 – December 31, 1979 • December 31, 1969 = \$100



Sources: Standard & Poor's and US Department of Labor - Bureau of Labor Statistics.

Figure 6. Building Blocks of Commodity Futures Returns by Decade

January 1, 1970 – December 31, 2013



Sources: Dow Jones & Company, Inc., Standard & Poor's, and Thomson Reuters Datastream.

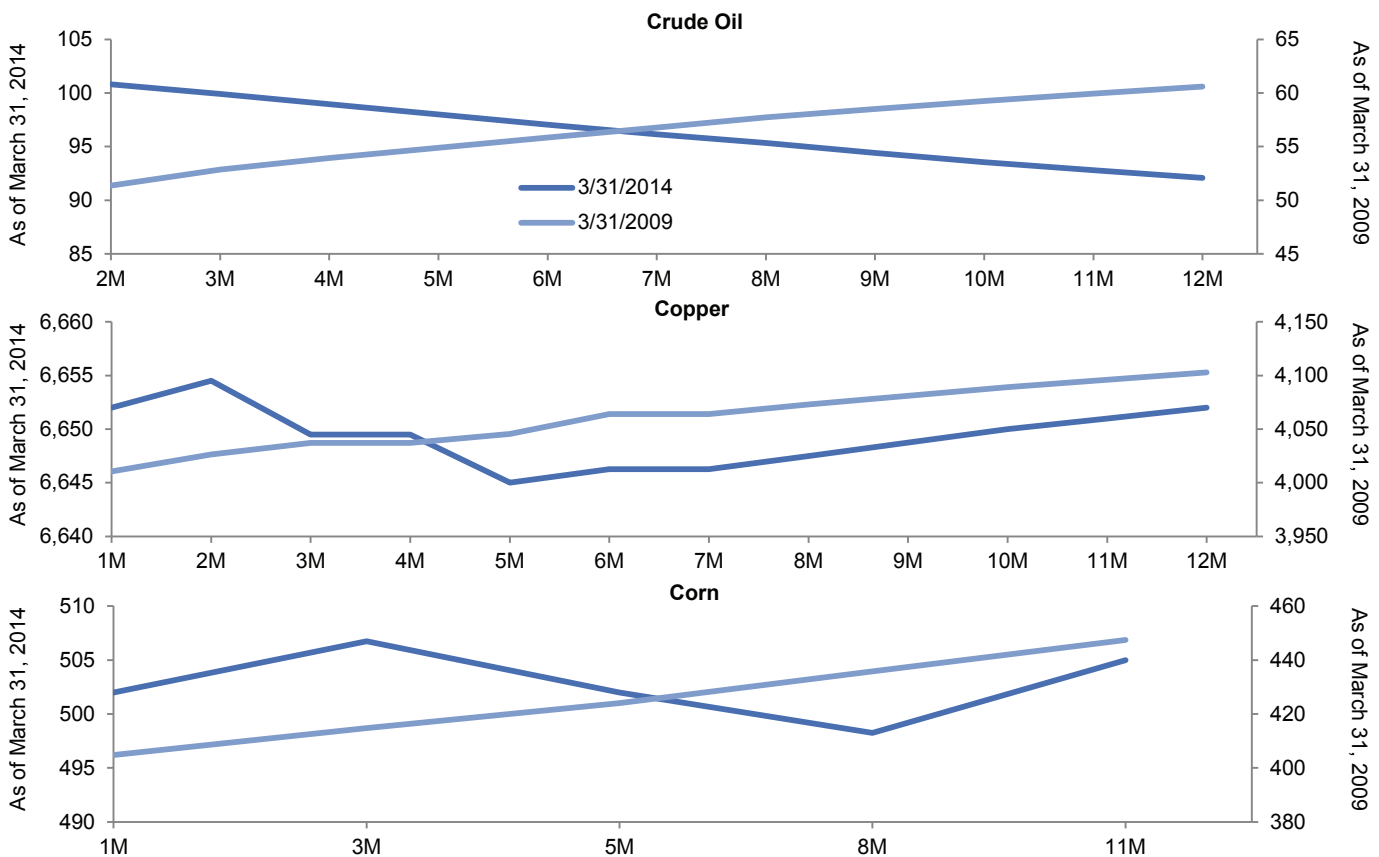
Notes: Represents components of the S&P GSCI™ and Dow Jones-UBS Commodity indexes. Collateral return is the return from investing futures collateral in cash instruments. Roll return is the premium gained (paid) when rolling futures contracts to the next month, when a commodity is in backwardation or contango. Spot return is the nominal change in spot price of the index's commodities. The Dow Jones-UBS Commodity Index begins December 31, 1990.

healthy 138% for the 1970s (AACR of 9%), they rose a meager 16.9% (AACR of 1.6%) adjusted for CPI. In large part this is due to the fact that the 1970s—as we would expect would be the case in any future “stagflation”—featured poor economic growth that crimped demand and thus real prices. And of course one cannot “invest” in spot prices unless one is willing and able to take physical possession of the commodity.

In sum, while commodities seem an obvious choice for inflation protection, their efficacy to protect spending during an inflationary spike is questionable at best given the structure of today’s commodity curves (negative carry) alongside *de minimis* collateral yields. That said, commodities have historically provided solid

diversification benefits, although this is also partly attributable to roll and collateral. While hindsight is of course 20/20, the “mistake” investors made in the early 2000s wasn’t buying commodities—in retrospect, all three “legs of the stool” were quite solid—but rather viewing a commodity allocation as a permanent part of the portfolio that would protect against an inflation spike. We instead see commodities as an opportunistic-type asset, with potential diversification *and* growth characteristics for portfolios depending on supply/demand, the shape of the futures curve, and prevailing collateral yields.

Figure 7. The Changing Shape of Futures Curves
As of March 31, 2014



Source: Bloomberg L.P.

Real Estate and REITs

Real estate is widely considered a real asset, although again its efficacy as an inflation hedge is open to debate—depending on the type of real estate investment, it can behave more like a growth engine, diversifier, or income generator. Reliable returns on private real estate are not available for the 1970s, so it is difficult to say how such investments performed during that period of high inflation in the United States.⁹ While data are available for REITs, such investments are a relatively poor proxy for direct real estate investments given their high correlation to general equity markets. Further, the current REIT industry bears little resemblance to that of the 1970s, which consisted largely of mortgage lenders as opposed to the equity-ownership structure of today's REITs that are segmented by office holdings, apartment holdings, etc.

The underlying theory for real estate as a hedge against inflation is that over time, rents and property values will rise in tandem with inflation. The ability to raise rents is a function of lease structures. Logically, shorter-term leases reset more quickly and therefore should be more responsive to inflation. Longer-term leases can also be responsive, particularly in countries like the United States and the United Kingdom where rent reviews and increases—sometimes directly linked to inflation—can be built into the lease agreement. Either way, there will be a lag between changes in inflation and cash-flow adjustments. However, the ability to increase rents is only part of the story. In a rising rate environment, rental

income could be partially offset by rising debt service, and in an inflationary environment, by rising property management costs. Triple net leases are structured such that the tenant, as opposed to the property owner, is responsible for property taxes, insurance, and most maintenance. Properties with this type of lease structure provide the greatest protection against eroding purchasing power—the owner benefits from an inflationary environment through rising rents without the drag associated with a corresponding increase in expenses.

Property values also impact the efficacy of real estate as an inflation hedge. In a 1970s redux with low economic growth and rising interest rates, property values are likely to decline or, at best, not appreciate meaningfully. Rising interest rates will likely push real estate values lower at the same time stalled economic growth mutes property-level cash flow. In other words, instead of producing more cash flow to keep pace with purchasing power, real estate is possibly producing less.

An additional impediment is the potential political nature of the asset class, which can manifest itself in two ways. First, real estate investments may actually become less attractive in periods of very high inflation, as political pressure to cap rents may intensify under such conditions. Second, non-resident investors are often at a severe disadvantage—effectively barred from buying private properties in many markets—as the prospect of “foreigners” buying up land or property may instill fear in residents and politicians, who can respond by passing laws prohibiting or severely restricting such purchases. At the very least, buyers are likely to be subject to additional taxes; for example, the US Foreign Investment in Real Property Tax Act (FIRPTA) imposes taxes on gains received by foreign sellers of US capital assets.

⁹ Data for the NCREIF Index—which tracks private property prices—begin in 1978, with blockbuster returns through the end of 1981 (92.6%, AACR of 17.8%). However, pre-1982 data represent a “trial index” with relatively few constituents; NCREIF itself was not established until 1982, at which point the index was officially adopted and expanded. In 1980, the index contained 493 properties worth less than \$2 billion, compared to 1,159 properties worth \$15.4 billion in 1985.

Finally, while it is tempting to view REITs as an attractive inflation hedge due to their good liquidity, exposure to underlying real estate, and solid cash-flow characteristics, they are unlikely to do well during a period of sustained high inflation when equity markets are under pressure. REITs, of course, suffer from all the other drawbacks listed for private real estate, with the added negative feature of tracking equity markets more closely than they do inflation—they behave more like financial assets than real assets.

So why bother holding real estate in a portfolio? This is a broader question outside of the scope of this paper, but suffice it to say that real estate ownership has historically provided significant benefits over long periods of time, and we expect this to continue in the future.

Inflation-Indexed Securities

Inflation-indexed bonds are designed to provide investors with a constant real return. To achieve this, either the principal value of the bond is adjusted for inflation and the coupon rate is paid on the adjusted principal, or the coupon itself is adjusted while the principal remains stable. Either way, cash flows increase with the rate of inflation. While there will be a lag between changes in inflation and the adjustment to the cash flows, the bonds should have a high correlation with inflation and offer inflation protection comparable to that of cash equivalent instruments but with potentially higher returns. Further, inflation-linked bonds do not suffer to the same extent from the problem of illiquidity associated with other inflation-hedging strategies.

However, the market history of inflation-indexed bonds is relatively short and covers a period in which inflation was generally falling or stable; there is no record of inflation-linked

bond performance during a period of rising inflation. Logically, inflation-indexed bonds would seem the perfect inflation hedge, as they are designed to generate positive returns during inflationary periods and should provide ample liquidity to institutions looking to support spending. The main drawback is that the price of inflation-indexed bonds is driven not only by the prevailing rate of inflation but also by the movement of real interest rates. As mentioned earlier, such instruments may not be a suitable investment for those concerned that governments systematically underreport inflation.

For example, if a central bank sought to combat rapidly rising inflation by pursuing a policy designed to force real interest rates higher (*à la* Paul Volcker in the early 1980s), then the appreciation of inflation-indexed bonds resulting from rising inflation might be offset by depreciation due to rising real interest rates. Unfortunately, we lack sufficient historical data to determine the probability of such an outcome and so cannot predict with confidence the likely performance of inflation-indexed bonds during an inflationary shock.

When would we advocate holding inflation-indexed bonds? This depends almost exclusively on real yields and the yields on competing investments. Again leaving aside the question of whether government inflation statistics can be trusted, for investors planning to hold such securities through short-term fluctuations, we would likely view real yields above 2% as attractive, and anything approaching 4% as very attractive.

Natural Resources Equities

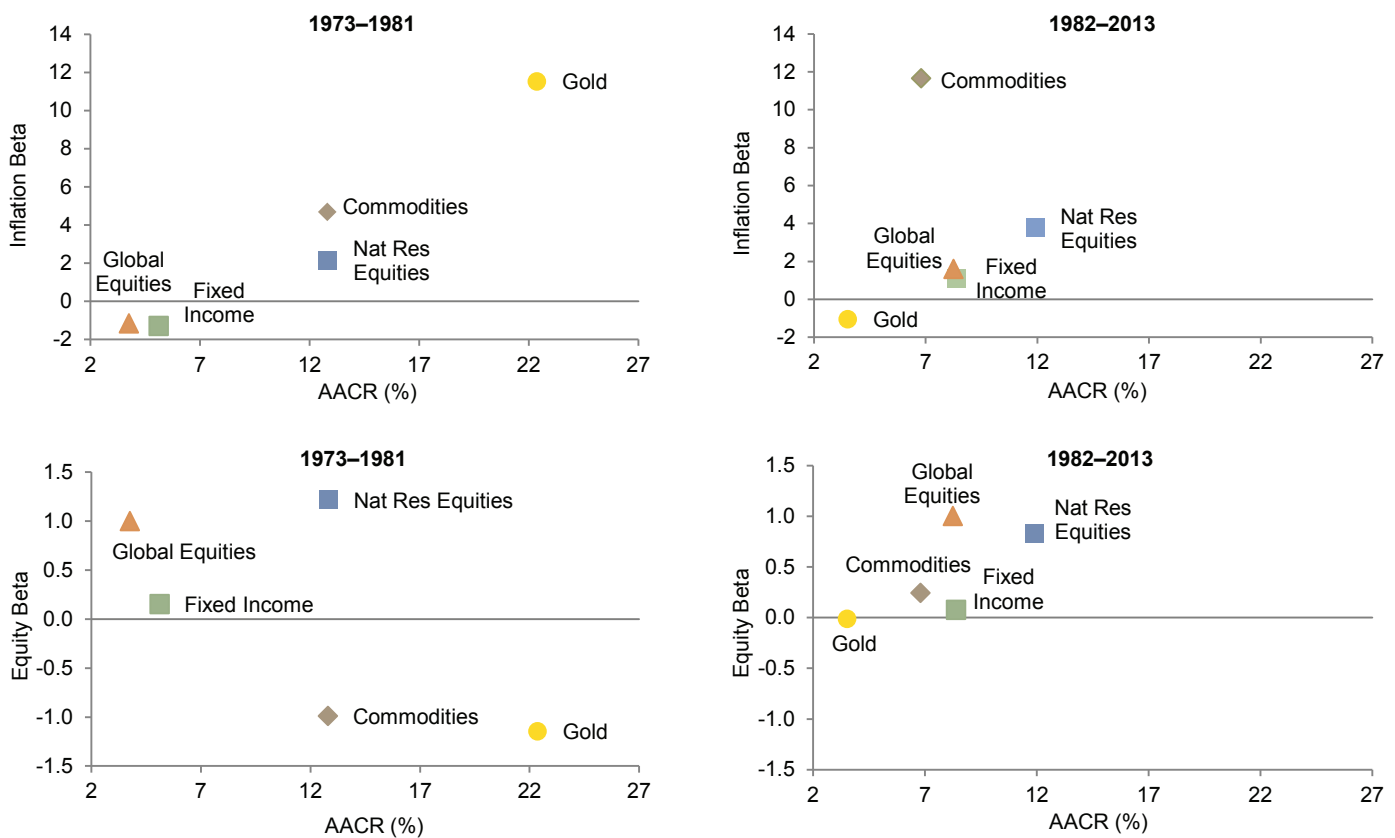
In early 2012 we began to recommend investors substitute natural resources equities for commodities, primarily due to the aforemen-

tioned structural issues with commodity futures, as well as better valuations for natural resources equities relative to the underlying commodities. However, in the case of an inflation spike, the performance of natural resources equities is a bit of a wildcard. While natural resources equities generally performed well in the 1970s, they have in recent years shown more correlation with broad equity indexes than with commodities or inflation (Figure 8). Whether they would decouple from broad equities in a future inflation spike is unclear. Further, an often ignored issue regarding natural resources equities during

an inflationary spike is that while selling prices rise, so do inputs; corporate managements may also take actions that mute their effectiveness as a hedge (e.g., selling production forward to lock in prevailing prices). Thus, it is far from assured natural resources equities will provide needed protection during this scenario.

We recommend investors assess natural resources equities in much the same way as they do other equity investments, using a blend of valuations and current conditions to evaluate their attractiveness on both an absolute and relative basis.

Figure 8. Inflation and Equity Betas for Various Assets in Periods of High and Low Inflation



Sources: Barclays, MSCI Inc., Standard & Poor's, Thomson Reuters Datastream, and US Department of Labor - Bureau of Labor Statistics. MSCI data provided "as is" without any express or implied warranties.

Notes: Data are through December 31, 2013. Commodities are represented by the S&P GSCI™ Index. Fixed income is represented by the Barclays Govt/Credit Index. Global equities are represented by the S&P GSCI™ Index. Natural resources equity returns are composed of 80% Datastream World Oil & Gas Index and 20% Datastream World Mining Index from February 28, 1973, through December 31, 1998, and the MSCI World Natural Resources Index from January 31, 1999, through present.

Gold

Opinions on gold vary widely. To some, gold seems like the obvious, and perhaps only, hedge against an inflationary spike, as it should perform well against depreciating fiat currencies. To others, gold has indeed become a “barbarous relic” that is not money and has no role in today’s economy. Gold was a standout asset during the 1970s, although it could be argued that a significant percentage of that performance represented a catch-up phase for the metal after being fixed at \$35 an ounce since the 1930s. We would certainly expect gold to provide some protection during an inflationary spike, but part of the difficulty with gold stems from its lack of financial characteristics—it pays no interest and has no maturity date—which makes it more than difficult to value. Having said that, given there is no default risk to the holder of gold bullion and the metal cannot be digitally printed by central banks, the lack of an income stream and maturity date make sense.

We believe gold will continue to represent a store of value over long time periods, but shorter-term movements are far less predictable. If someone had told us in 2009 how governments and central banks would respond to the financial crisis, we would have wanted to own *more* gold. Thus, investors in gold must accept significant opportunity cost, as well as price risk, in exchange for holding the asset most likely to protect them against a long-term period of wholesale currency debasement.

Private Investments

It is difficult, if not impossible, to compress all private real asset investments into a few paragraphs—upstream energy investments, for example, differ markedly from timber or

commercial real estate. While all these assets have some sensitivity to inflation, liquidity terms and underlying structures vary widely, making it difficult to paint with a broad brush. To take the cleanest example—if a manager sells forward the oil it extracts to meet loan covenants, the investment’s inflation-hedging potential will be reduced. Yet the manager will make that decision to ensure a *required* return, not to *maximize the total return*.

Still, we can make some general assumptions about the efficacy of private real assets to protect against a sharp inflationary spike, particularly when evaluating specific investment opportunities. Investors should think of private real assets as growth drivers with some *potential* for inflation hedging. However, given the structure of such investments, they are almost certain to not provide cash flow and/or liquid investment gains exactly when needed. While private investments may well deserve a place in an investor’s portfolio, they should not be relied upon to support spending during an inflation spike.

Other Alternatives

There is more than one way to protect a portfolio—one of the more common following 2008 was for investors to look for uncorrelated investments likely to provide large payoffs during the period in question. Many “tail-risk” products sold themselves on just this basis. Given the difficulties of the options detailed above—not to mention that we currently consider commodities, REITs, and TIPS to be overvalued—we evaluated derivatives as a potential alternative to a traditional inflation-hedging allocation. After all, rather than tying up 10% to 15% of a portfolio in assets with potentially weak inflation protection and relatively low current expected returns, why not spend 50 bps to 100 bps, for example, on options likely to pay off when the

inflation surge arrives? The cost, theoretically, could be borne by higher returns on the rest of the portfolio—i.e., take the other 14% and invest it in equities, bonds, or other asset classes.

Unfortunately, things are more complex than they appear. It is true, of course, that many investors are either unwilling or unable to invest in derivatives directly. Even leaving that aside, the inherent uncertainties with respect to the timing of inflation present arguably insurmountable obstacles to the prospective derivatives investor.

Consider the following scenario: An investor worried about inflation spends 1% of total assets on deep out of the money (OTM) interest rate calls on the assumption that rising inflation will cause rates to rise. Such options have an asymmetric risk payoff favorable to the investor, in that they contain significant embedded leverage on the upside (i.e., rising rates), but at a fixed cost (downside is capped at the cost of the option premium). So far, so good.

However, the rub with OTM options is that since *all* their value is “time premium,” an investor must balance competing objectives—i.e., either buy shorter-dated, cheaper options, or longer-dated, more expensive ones. The former maximize the embedded leverage, but also the risk of total loss; the latter are more likely to pay off, but with a lower “bang for the buck.”

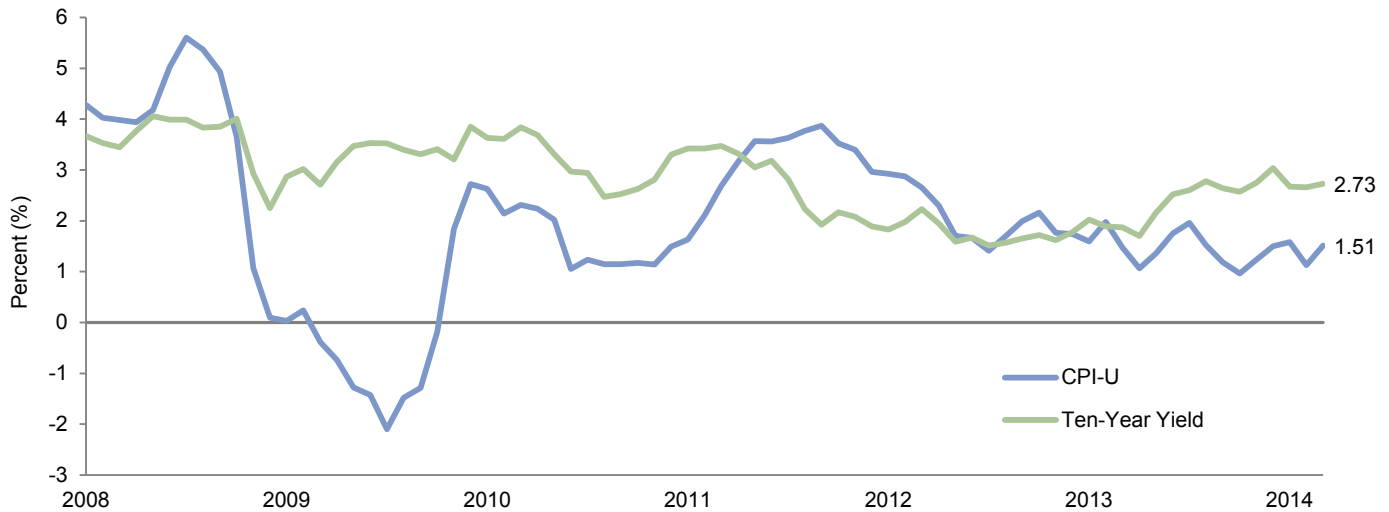
For the sake of argument, let’s assume our investor bought calls with a one-year maturity in 2008, with plans to annually roll them into new one-year options. To make things even more interesting, let’s also assume our investor has been living “off the grid” since the initial purchase, but with access to all financial and business news *except* market prices. It is not hard to imagine our investor celebrating his

prescience, as government deficits exploded and central bank balance sheets ballooned. And yet, on emerging from his bunker, our investor is shocked to find *all* his options have expired worthless as both CPI and interest rates have trended *down* since 2008 (Figure 9).

The point of this exercise is to illustrate the extraordinary difficulty of getting an options trade “right.” Even if macro events play out as expected—in and of itself relatively rare—markets may fail to react in a predictable manner. The bottom line is that our fictional investor has in effect wasted 5% of portfolio value on options premium. In the event that inflation hits in 2014, our investor would need to make a 500% return on the position just to break even! It should go without saying that positions with such payoffs are few and far between.

As for financing the position with higher expected returns elsewhere in the portfolio, this idea works great in theory, but is a little more complicated in practice. To begin with, expected returns are spread over a long timeframe while options payments come consistently every year (or whenever the options are rolled). Moreover, from a behavioral standpoint, investors sitting on losing options positions year after year will likely eventually decline to “write the next check” to keep the options alive. Finally, even in what we would consider a *best-case* scenario (assuming a former allocation to inflation-hedging assets of 15% with an expected real return of zero, compared to overall portfolio returns of 5% real), this would only accrue an extra 75 bps a year if the remaining 14% (after option expenses) is moved into the broader portfolio. While an investor could likely cover at least some of the costs by reallocating assets, it will almost certainly not cover the full costs. The

Figure 9. CPI-U and Ten-Year Treasury Yields
January 31, 2008 – March 31, 2014



Sources: Federal Reserve, Thomson Reuters Datastream, and US Department of Labor - Bureau of Labor Statistics.

Note: Data for CPI-U is year-over-year.

annual reality of losing options positions is more than most investors and committees can bear.

Other derivatives positions have different problems. For example, inflation swaps—where the investor “pays” a fixed rate of inflation, say 3% a year, and “receives” the actual CPI—also seem at first blush like a reasonably effective hedge. Unfortunately, while inflation swaps are a “pure” hedge on inflation, they are very difficult to scale. Consider an investor with a \$200 million portfolio that hedges half of it (\$100 million) with an inflation swap with a fixed “pay” of 3%. In the event inflation soars to 8% a year, the investor pockets \$5 million ... or 2.5% of the total portfolio. Certainly better than nothing, but not enough to cover spending, let alone plug the hole of equity and bond losses likely to push well into double-digit percentages. And this for an investor that hedged half the total portfolio!

We encountered similar problems with every derivatives strategy we considered—very

disheartening indeed considering our current assessment of commonly owned real assets.

Conclusion

Investors should rethink the *idea* of an “inflation hedge” and consider more carefully what they are trying to achieve. The more we look at allocations to real assets, the less confidence we have in them solely as protectors of wealth during an inflationary episode, and thus perhaps not worth the considerable opportunity cost incurred by holding them specifically for that reason. Investors should look at such assets on the same basis as all other holdings in a portfolio—can these assets help achieve return objectives? Do they provide income, growth, or diversification benefits? Sacrificing a lot of potential return for an uncertain payoff should not be entered into lightly, particularly for investments like commodities that have meaningful downside risk during economic slumps. Instead, investors should more heavily weigh the other benefits real assets offer, allocating them across

the portfolio based on their yield, growth, and diversification characteristics.¹⁰

If investors decide to include real assets for their inflation-sensitive qualities, then it is worth noting that high-quality equities may well prove a decent inflation hedge—solid companies with pricing power can reasonably be expected to pass on cost increases, blunting the negative effects of inflation—in which case most investors already have something of a built-in hedge. We consider such equities to be overvalued today, but less so than the broad market.

Finally, international equities have historically played an inflation-sensitive role, particularly for non-US investors, although there are reasons to believe such a strategy may work less well today than in the past.

We have come to recognize that the traditional method of protecting against inflation is fraught with difficulties and alternatives are not much better. Unless an investor has extraordinary foresight and can predict the timing of inflation fairly accurately, the cost-benefit ratios of *all* these assets solely as inflation hedges look unattractive. To some degree this is logical—much as the “winners” in bear markets are said to be those who lose the least, it is virtually impossible to increase, or even maintain, wealth in an environment where the unit of account is rapidly depreciating. In effect, one must either be very, very good ... or very lucky. Even an investor that saw the 1970s inflation coming would have struggled to hedge it, and inflation’s quiescence since 2008 despite extraordinary government and central bank actions has left more than a few savvy observers scratching their heads.

The ability to hedge high inflation requires an investor to not only foresee the timing and

extent of the inflation, but also *the assets against which the currency will depreciate*. We know few investors with such knowledge.

To summarize, we remain positive on many real assets investments and managers ... but not solely as inflation hedges. For example, we continue to believe many private equity energy vehicles do offer attractive risk-reward propositions. However, for the reasons cited above, we would not recommend investors view these investments as protection against an inflation spike. We would make similar statements about timber, real estate, agriculture, mining, and even infrastructure. Real assets should be owned to drive growth, income, or diversification in portfolios, but not solely for their perceived sensitivity to inflation. ■

¹⁰ It is worth noting that several large institutions have already adopted such a strategy.

Copyright © 2014 by Cambridge Associates LLC. All rights reserved. Confidential.

This report may not be displayed, reproduced, distributed, transmitted, or used to create derivative works in any form, in whole or in part, by any means, without written permission from Cambridge Associates LLC ("CA"). Copying of this publication is a violation of US and global copyright laws (e.g., 17 U.S.C. 101 et seq.). Violators of this copyright may be subject to liability for substantial monetary damages. The information and material published in this report are confidential and non-transferable. Therefore, recipients may not disclose any information or material derived from this report to third parties, or use information or material from this report, without prior written authorization. This report is provided for informational purposes only. It is not intended to constitute an offer of securities of any of the issuers that may be described in the report. No part of this report is intended as a recommendation of any firm or any security, unless expressly stated otherwise. Nothing contained in this report should be construed as the provision of tax or legal advice. Past performance is not indicative of future performance. Any information or opinions provided in this report are as of the date of the report and CA is under no obligation to update the information or communicate that any updates have been made. Information contained herein may have been provided by third parties, including investment firms providing information on returns and assets under management, and may not have been independently verified. CA can neither assure nor accept responsibility for accuracy, but substantial legal liability may apply to misrepresentations of results made by a manager that are delivered to CA electronically, by wire, or through the mail. Managers may report returns to CA gross (before the deduction of management fees), net (after the deduction of management fees), or both.

Cambridge Associates, LLC is a Massachusetts limited liability company with offices in Arlington, VA; Boston, MA; Dallas, TX; and Menlo Park, CA. Cambridge Associates Fiduciary Trust, LLC is a New Hampshire limited liability company chartered to serve as a non-depository trust company, and is a wholly-owned subsidiary of Cambridge Associates, LLC. Cambridge Associates Limited is registered as a limited company in England and Wales No. 06135829 and is authorised and regulated by the Financial Conduct Authority in the conduct of Investment Business. Cambridge Associates Limited, LLC is a Massachusetts limited liability company with a branch office in Sydney, Australia (ARBN 109 366 654). Cambridge Associates Asia Pte Ltd is a Singapore corporation (Registration No. 200101063G). Cambridge Associates Investment Consultancy (Beijing) Ltd is a wholly owned subsidiary of Cambridge Associates, LLC and is registered with the Beijing Administration for Industry and Commerce (Registration No. 110000450174972).