

Schroders

Reappraising the case for commodities



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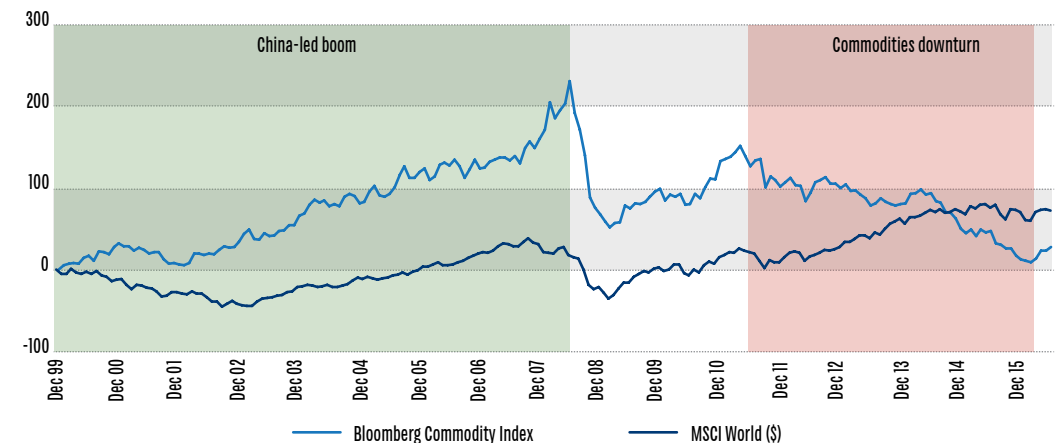
- Commodities have been one of the star performers of 2016 yet investor sentiment has rarely been more negative. Previous poor performance means they remain one of the few asset classes globally that can lay a claim to being cheap.
- While downside risks remain, commodities are not only cheap in a historic context but also relative to equities and marginal costs of production.
- Commodities provide a hedge against rising inflation that few other asset classes have been able to demonstrate historically. Those that have are currently either very expensive or no longer fit for purpose.
- There is a relatively weak relationship between commodities and equities. They can offer significant diversification benefits even if it is unrealistic to expect them to hedge equity market crashes.
- Commodity volatility is on a par with equities. However, they can improve expected risk-adjusted returns even on the basis of a relatively conservative return outlook.
- Commodities represent a relatively inefficient asset class which offers relatively high potential excess returns for skilled managers.

A rollercoaster ride

Commodity investments have been on a rollercoaster ride. Investor interest sparked into life in the 2000s as a raft of academic research emerged extolling the virtues of commodities as an asset class¹. Historic equity-like returns and significant diversification benefits relative to equity and bonds were key attractions as was the potential inflation-hedging quality of the asset class. For a number of years, commodities exceeded these expectations as insatiable demand from emerging markets and China in particular spurred a super cycle in commodity prices. Between December 1999 and June 2008, the Bloomberg Commodity Index (BCOM, previously known as the Dow Jones-UBS index) delivered total returns of around 15% a year with similar volatility to equities, during a period where equities barely broke even² (Figure 1).

Figure 1: The rise and fall of commodities

Cumulative total return (%)



Source: Datastream, Bloomberg, MSCI, data to 30 June 2016.

¹ "Facts and Fantasies about Commodity Futures" by Gary Gorton and K. Geert Rouwenhorst, Wharton School, University of Pennsylvania, February 2005, is one of the most famous. <http://fic.wharton.upenn.edu/fic/papers/06/0607.pdf>

² BCOM was established in 1991 and is more diversified by commodity than the longer standing S&P GSCI index (GSCI, established 1970), which has an over 70% allocation to the energy sector. In this paper we have used BCOM to represent commodity returns where possible as it is more reflective of the broader commodity universe. However, when longer term analysis has been carried out we have used the GSCI as a result of its longer track record.

Excitement about commodities grew over this period leading to expectations that they would continue to outperform equities, at least in risk-adjusted terms. After the financial crisis hit, commodity prices fell but emerging economies initially weathered the crisis relatively well, fuelling expectations that commodities could maintain their upward trajectory. However, recent performance has proved that to be, with hindsight, an unrealistic expectation. Even after the upturn in 2016, the Bloomberg commodity return index has fallen around 50% from its 2011 peak and the GSCI return index, another common benchmark, is down around 60%. Sentiment towards commodities has turned decidedly sour and investors are questioning the role of commodities in strategic asset allocation. The way to address these questions is to return to first principles and re-assess why commodities could merit a place in portfolios in the first place.

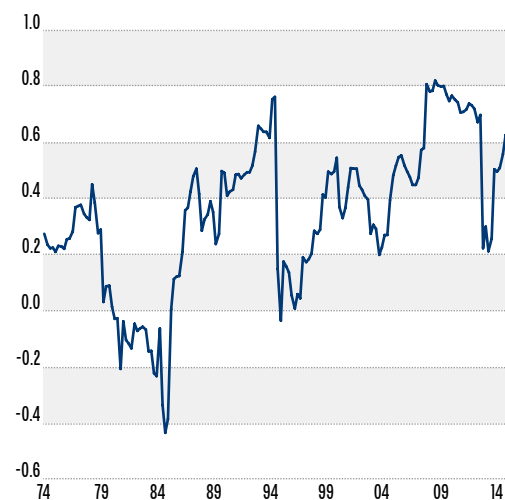
Reason 1: Inflation hedging

Most asset classes struggle in periods of high and/or rising inflation. Fixed income bonds are an obvious casualty as higher inflation erodes the value of their income, sending yields higher and prices lower. Equities perform best when inflation is moderate, but struggle in periods when inflation is high and rising as companies struggle to fully pass on higher input costs to end consumers. In contrast, commodities have historically thrived in such an environment (Figure 2).

In technical terms, over the long run and over most historic time periods, commodities have been positively correlated with inflation. In other words, commodity returns have tended to pick up when inflation has been rising and decline when inflation has been falling. This goes some way to explaining poor performance since 2008. They have historically been a good hedge against rising inflation. This can be contrasted with both equities and Treasuries which have both tended to struggle when inflation has been rising. This is a potentially valuable attribute.

Figure 2: Commodities are positively correlated with inflation...

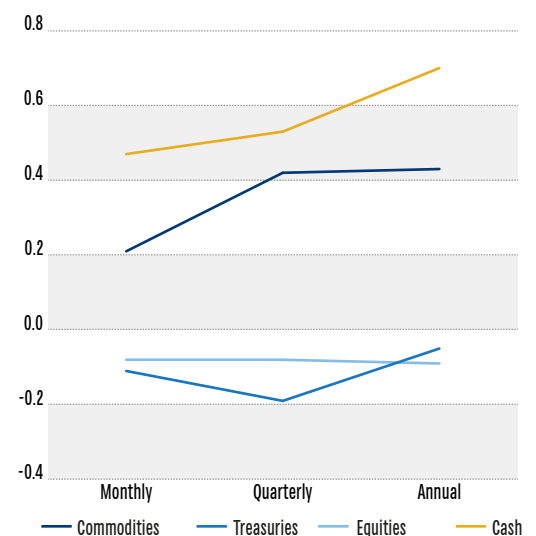
Rolling 20 quarter correlation between commodities and inflation.



Source: S&P GSCI, Datastream, Q1 1970–Q2 2016.

...in contrast to equities and bonds

Correlation between monthly, quarterly, annual returns and inflation.



Source: S&P GSCI, MSCI Barclays 1972–2015.

However, a simple look-back over history would suggest there is another asset class which has appeared to perform this function even better over the long run without exposing investors to the risk associated with commodity investments. This is plain old simple cash. Prior to the financial crisis, central banks would generally hike interest rates if they were worried about inflation being too high relative to their targets or cut them if they were concerned about too-low inflation. This would generally lead to cash rates increasing when inflation was higher and falling when inflation was lower. The result of this interaction has been a low positive historic real return on cash and a strong correlation between cash rates and inflation over the long run.

However, cash has been a less good inflation hedge over recent years as central banks have held interest rates near zero, in part to ease the strain on indebted borrowers and support economic growth. Real cash rates have consequently been negative for a number of years now and the correlation between cash and inflation has fallen significantly. Policy is arguably more supportive of allowing inflation to err on the side of being too high than too low as central bankers are hesitant about raising interest rates too rapidly and stifling growth.

Higher inflation is also arguably the least painful way to reduce sizeable debt burdens around the world in real terms. Hence, monetary policy is likely to be slow to react to any pick-up in inflation and cash rates are likely to be held low in nominal terms and relative to inflation for the foreseeable future. Cash does not look such a good inflation hedge at present.

The limitations of traditional inflation protection

Other asset classes often cited as offering inflation-hedging qualities include inflation-linked bonds (our analysis is based on Treasury Inflation-Protected Securities, known as TIPS) and real estate. Our analysis confirms the positive correlation between these asset classes and inflation. However, there are some important caveats:

- Over short holding periods, inflation-linked bond returns have a relatively weak relationship with inflation. The reason is that, while coupon income is driven by inflation, total returns are dominated by the price-impact of movements in real yields. The US TIPS market has a duration of around 8 years³, meaning that a 1% movement in real yields would result in an 8% change in price.
- Annual returns on TIPS have a closer relationship with annual changes in inflation but, even on this basis, the relationship has been weaker than between commodities and inflation over the almost 20-year history of the TIPS market.
- Real estate suffers a similar affliction in that movements in capital values can dominate any implicit or explicit inflation-linkage in underlying rental contracts. Real estate has generated positive real returns over time, but that is not the same as hedging movements in inflation.
- Both TIPS and real estate are currently very expensively valued on a historic basis. 10-year maturity TIPS offer a real (before inflation) yield of around 0.1%, compared with an average since 1997 of 1.9%. An assessment of whether real yields are likely to move higher or lower in future is outside the scope of this paper, but it is clear that they are expensive in a historic context. Similarly, rental yields on core real estate have plummeted towards all-time lows – the income return on the NCREIF index of core real estate funds is at the lowest level since data started being collected in 1978.

Therefore, while inflation-linked bonds and real estate have the ability to act as inflation hedges, this currently comes with a high price tag. This is in stark contrast with commodities which have cheapened considerably over recent years.

Table 1: Correlation between US CPI and monthly, quarterly and annual returns over various time periods

	Commodities	Equities	Core Real Estate	Treasuries	TIPS	Cash
Since 1973						
Monthly	0.2	-0.1	n/a	-0.1	n/a	0.5
Quarterly	0.4	-0.1	n/a	-0.2	n/a	0.5
Annual	0.4	-0.1	n/a	0.0	n/a	0.7
Since 1978						
Monthly	0.2	0.0	n/a	-0.1	n/a	0.5
Quarterly	0.4	0.0	0.3	-0.2	n/a	0.5
Annual	0.4	0.1	0.3	0.0	n/a	0.7
Since 1997						
Monthly	0.4	0.0	n/a	-0.2	0.1	0.1
Quarterly	0.6	0.1	0.2	-0.3	0.2	0.2
Annual	0.8	0.3	0.2	0.0	0.6	0.5

Source: S&P GSCI, Barclays, MSCI, Federal Reserve, NCREIF, Datastream, Schroders. Real estate data available since 1978, TIPS data available since 1997. Data to end 2015.

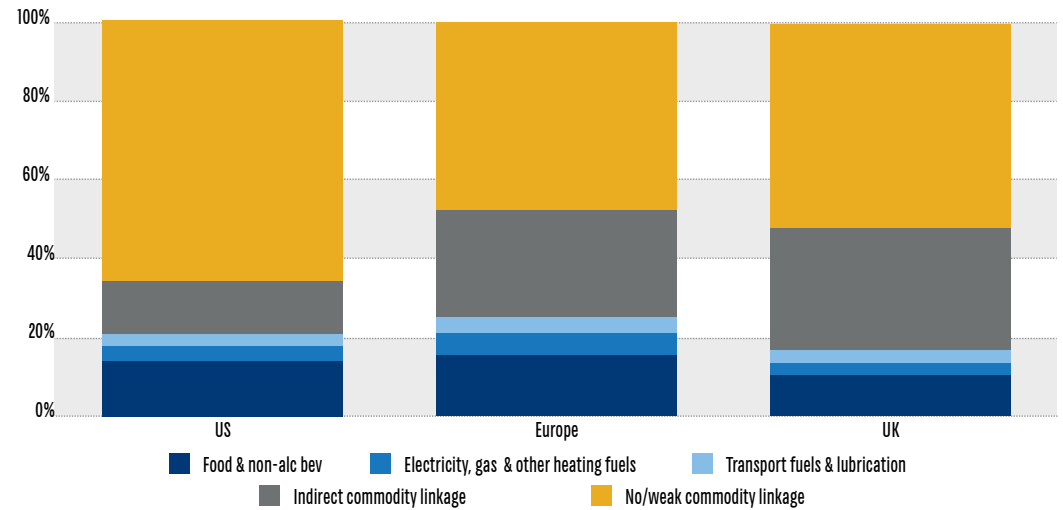
At a high level it should not necessarily be surprising that there is a relationship between commodities and inflation. It is intuitive that periods when inflation is accelerating because of overheating growth are likely to be accompanied by rising commodity prices, given that commodities are literally the raw material for much economic growth.

However, there is an even more obvious reason why commodity prices and inflation tend to move in similar directions. Commodities are a key component of inflation indices around the world so it follows almost by construction that movements in commodity prices and inflation indices will be positively related. Around a fifth to a quarter of the weight of headline CPI inflation baskets in the US, Europe and UK directly relate to food and energy prices, but commodity prices also have a significant indirect impact (Figure 3). For example, industrial metals are the building blocks for new cars and airfares are strongly influenced by fuel costs.

In total, we estimate that around half of European and UK inflation baskets have either a direct or strong indirect link with commodity prices with the proportion around a third in the case of the US (the US is lower as rent makes up around a third of the US CPI basket, compared with only 6–7% in Europe and the UK).

Inflation rates in emerging markets have even greater exposure to commodity prices. For example, around a third of the Chinese CPI basket is represented by food and non-alcoholic beverages alone.

Figure 3: Commodities account for a big part of headline consumer price indices

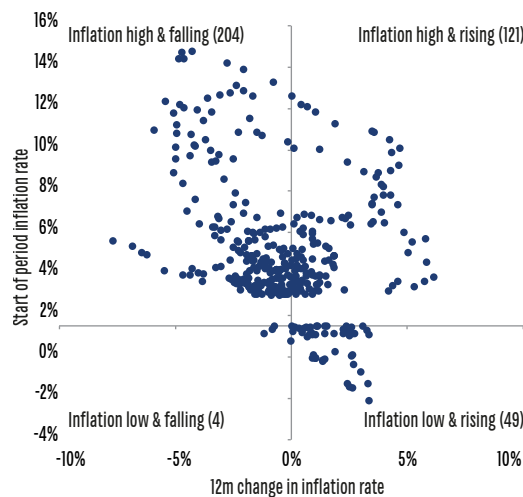


Source: US Bureau of Labor Statistics, European Central Bank, UK Office for National Statistics, Schroders, data correct as at 30 June 2016.

Delving a bit deeper into the data, we have segmented history into different inflation environments and assessed the real performance of equities, commodities and Treasuries in each environment (Figure 4):

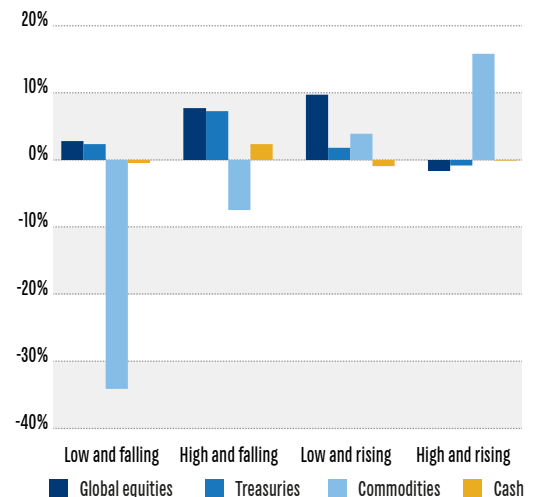
- those where inflation is high (defined as 3% or higher) or low (defined as 1.5% or lower)
- those where inflation is rising or falling.

Figure 4: Inflation regimes 1973–2016...



...and how different assets react to them.

Average 12-month real returns



Source: Datastream, S&P, Barclays, Schroders.

The figures in brackets in Figure 4 represent the number of rolling 12-month periods which equate to each scenario. The second chart demonstrates a clear relationship between commodity returns and the inflation regime. Real returns tend to be positive when inflation is rising and negative when inflation is falling. Returns are particularly strong when inflation is both high and rising. In contrast, equities, bonds and cash have all historically generated real losses when inflation has been 3% or higher and rising. Commodities stand out as the star performer in such an environment.

There is a cause and effect issue here as, more often than not, the cause of a spike in inflation is a spike in commodity prices. It should therefore come as no surprise that commodity investments perform well in such an environment. Indeed, almost half the occurrences of high and rising inflation in our sample occurred in the 1970s, when commodity prices were rising rapidly. However, this does not invalidate their value as a hedge against rising inflation. If an investor is worried about periods of high and rising inflation and a likely cause of such an outcome is rising commodity prices, then it is natural for such an investor to benefit from an allocation to commodities. In addition, the profile of commodity returns charted above is identical if the 1970s are excluded from the analysis. Although the 2000s was a period characterised by moderate inflation, there were actually 11 occurrences when inflation fell into the high and rising category during that decade.

Furthermore, as can be seen in the first chart in Figure 2, the correlation between commodities and inflation has been persistently positive throughout the late 1980s, 1990s and 2000s, despite inflation being more restrained throughout most of this period. Commodity returns have tended to move in synch with inflation throughout. These conclusions are also consistent with the findings in academic research. For example, World Bank research concluded that commodities outperform in the 18-month period following an unexpected rise in inflation with bonds being the worst performer and equities also suffering⁴.

The other stark conclusion in the chart on the previous page is that real commodity returns are negative when inflation is falling and performance has been particularly poor when inflation is both low and falling. This is very similar to the experience of the last few years. Unfortunately for our analysis, there have been very few occurrences where inflation has been 1.5% or lower and falling since the early 1970s which limits the size of this sample. Furthermore, all of these relate to recent experience.

If we relax this constraint to include periods when inflation was 1.75% or lower then this increases the sample size to 21, although 20 of these instances are from the last few years with the other being from 1998. The overall conclusions of both the recent and the 1998 experiences are consistent with this finding. This provides some comfort that we can conclude that commodities are likely to struggle in a low and falling inflation environment but we should be wary about assuming that the figures above are indicative of the scale of the falls that might occur.

Hedge against US dollar weakness

Historically, there has been a strong inverse relationship between commodity price indices and the dollar (Figure 5). Most commodity prices are denominated in dollars so, when the dollar strengthens, they become more expensive for non-dollar investors which has a negative impact on demand. Prices have therefore generally declined during periods of dollar strength. Similarly, demand from non-dollar investors picks up when the dollar is weaker, which puts upward pressure on prices. Unhedged non-US investors who are concerned about the impact that a weaker dollar could have on their other investments may find this characteristic attractive.

Figure 5: Commodity returns are inversely related to the dollar

Rolling 24 month correlation with trade-weighted USD



Source: Datastream, S&P GSCI, Bank of England.

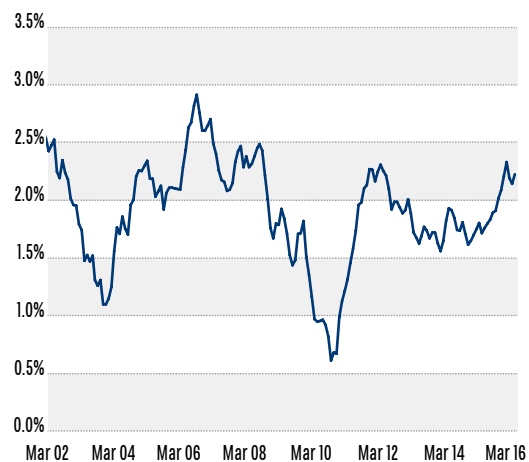
⁴ Inflation Hedging for Long-Term Investors, Alexander P. Attié and Shaun K. Roache, International Monetary Fund, 2009. <https://www.imf.org/external/pubs/ft/wp/2009/wp0990.pdf>

The inflation hedging potential of commodities was one of the original attractions of the asset class. However, over recent years global pressures have been more deflationary than inflationary. Commodities' inflation hedging attributes have understandably been in short demand. However, while some of these downward pressures on inflation are likely to persist for a while longer, one could equally argue that the inflationary tide may be turning. It is a common behavioural bias to put too much weight on the recent past when thinking about the future and investors selling commodities today risk making that very mistake.

Although headline inflation rates have been low, there are signs that inflation is brewing. The 12-month change in US core CPI, which excludes the effects of commodity prices and is a better guide to underlying inflation, has been steadily rising from 1.6% over 2014 to 2.2% in the 12 months to May 2016. In addition, the US unemployment rate has fallen below the Congressional Budget Office's estimate of the Non-Accelerating Inflation Rate of Unemployment (NAIRU, see Figure 6, right-hand chart). This is an estimate of the equilibrium unemployment rate, a level below which inflation is expected to pick up. Consensus expectations for longer term inflation also remain above 2%.

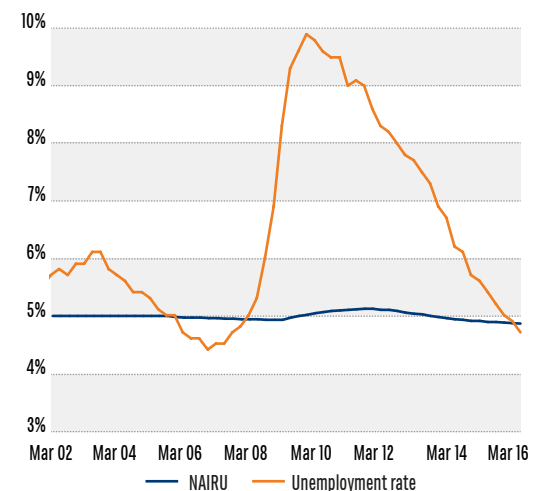
It is true that the Treasury and TIPS markets are giving an alternative view of the inflation outlook, as market implied breakeven inflation heads lower. However, we believe that this is likely giving a false signal at present. Increased risk aversion has encouraged demand for safe haven assets globally and Treasuries are particularly appealing in a global context given the relatively high yield they offer. This depresses Treasury yields relative to TIPS yields, pushing down breakeven inflation for reasons other than changed inflation expectations.

Figure 6: US core inflation has been rising...



Source: Datastream.

...while a tight labour market also presages inflation



Source: Datastream, US Bureau of Labour Statistics, US Congressional Budget Office.

The point here is not to say that inflation is certain to rise or that high inflation will be a problem any time soon. It is absolutely correct that there is a continuous push and pull between deflationary and inflationary forces. However, it would be complacent to ignore the possibility that inflation could become more of an issue over time. This is especially the case given the significant sums of money that central banks have pumped into the financial system over recent years and the policy bias towards generating inflation. Cynically speaking, a bit of higher inflation would not come amiss in reducing the real value of enormous public debt burdens around the world. Given that outlook, an allocation to commodities starts to make a lot more sense. The inflation hedging qualities of commodities may show their worth more in the next five years than the past five and, given the scale of the falls in prices over recent years, the cost of this protection is an awful lot less than it was.

Reason 2: Commodities diversify equity risk...but that does not mean they are a tail risk hedge

It is important to correct a popular misconception, and one which undoubtedly contributed to over-optimism from investors about commodities: it is unrealistic to expect commodities to gain in value whenever equities are falling. On average, commodity investments are not negatively correlated with equities. They are not a form of portfolio insurance against so-called tail risks such as the financial crisis. Investors seeking such protection should consider more direct forms of protection. These include volatility-controlled equity and multi-asset products, option protection strategies and tail-risk hedge funds.

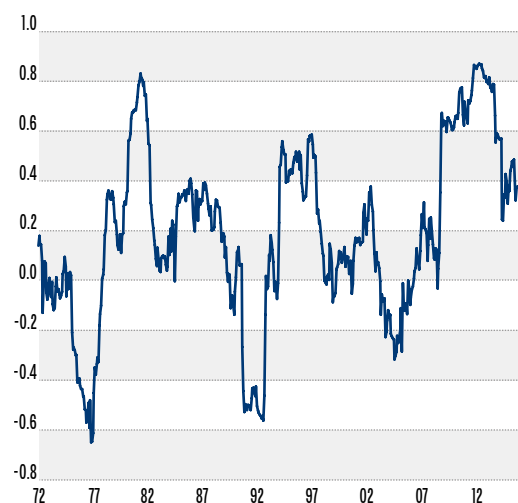
The relationship between commodities and equities varies considerably. At times a negative correlation can and does exist, but on average they have exhibited a low but positive correlation (Figure 7). This suggests a weak but positive relationship between returns from the two asset classes. Such a connection makes intuitive sense as commodity prices and corporate earnings growth are both linked to economic growth and the business cycle although both are obviously influenced by idiosyncratic factors too.

The relationship weakens further as the length of the holding period increases. For example, the correlation between either quarterly or annual commodity and equity returns is around 0, suggesting that historically there has been little relationship between returns over these timescales. Although not as appealing as a negative correlation, this suggests that there can be significant diversification benefits from adding commodities to an equity-heavy portfolio.

In contrast the relationship with Treasuries has been more persistently negative, although here too the relationship has occasionally turned positive (Figure 7, right-hand chart).

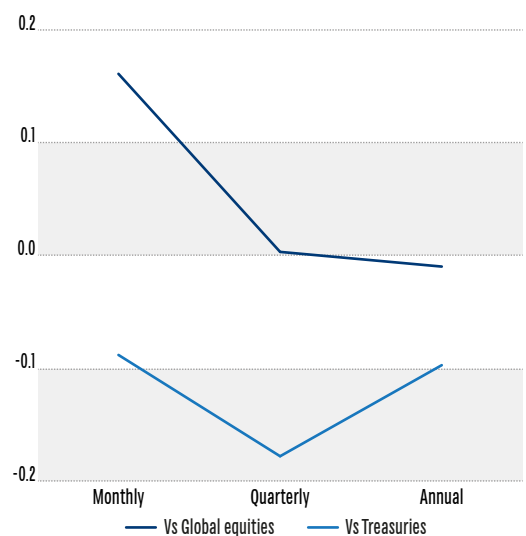
Figure 7: Commodities offer significant diversification benefits

Rolling 24-month correlation between commodities and equities



Data 1970–2016. Source: S&P GSCI, Datastream.

Correlation between monthly, quarterly and annual returns with commodities



Data 1972–2015. Source: Barclays, S&P GSCI.

The lessons of history

Clearly the experience of the financial crisis disappointed on this front. When the financial crisis hit, commodities fell in value alongside equities. The global nature of the turmoil meant that global demand collapsed. Commodities are the building blocks for much economic growth so it should not be surprising that they reacted badly.

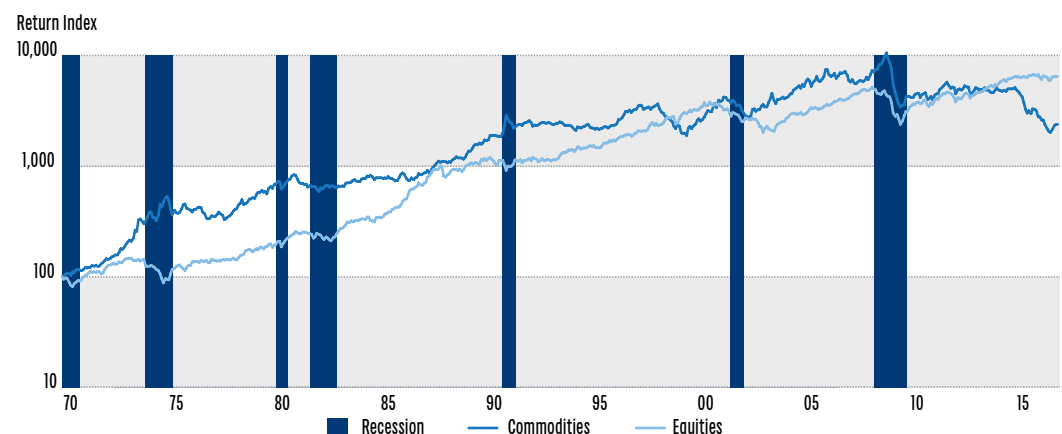
It has been argued by some commentators that the acceptance of commodities as a mainstream asset class also explains why they suffered alongside equities during the crisis. The argument goes that investment speculators have grown in influence relative to physical traders/hedgers (commodity producers typically use commodity futures markets to hedge their exposure to future price risk), leading to a “financialisation” of commodity markets. This results in commodity prices being vulnerable to the same shifts in investor sentiment that affect equity markets which in turn results in an increased correlation between commodities and equities.

However, if this was the case, then one would have expected the correlation between equities and commodities to have been elevated in the run up to the financial crisis as commodities grew more commonplace in portfolios. Figure 7 clearly demonstrates this has not been the case. In fact, the correlation between equity markets and commodities was relatively low in the pre-crisis years. Recent research concludes that the increase in the commodity-equity correlation during the crisis is consistent with previous downturns and can be better explained by reasons connected with the business cycle than by financialisation⁵.

We should also remember that the 2007/08 financial crisis was one particularly painful historic event. History provides counter-examples that are worth bearing in mind (Figure 8):

- There were two US recessions during the 1970s, both of which resulted in sizeable equity market declines. During both periods, commodities generated positive returns. High oil prices brought on the second of these recessions, so performance was particularly strong during this period as inflation was rampant – a so-called “stagflation” scenario. So, although weak global growth is clearly a headwind for commodity prices, history suggests it is possible for commodities to generate strong returns during a recession.
- The early 1990s recession coincided with the start of the first Iraq war. It was exacerbated by a spike in the oil price due to geopolitical uncertainty. As in the 1970s, commodities were one of the causes of the recession.
- During the brief recession which coincided with the bursting of the dotcom bubble, commodities initially fell alongside equities. However, they then recovered strongly while equities continued falling and significantly outperformed over the 2000–03 period. A key reason was that this crash was not primarily driven by a downturn in growth, but was more related to overvaluation in certain sectors of the equity market. The lesson here is that it is crucial to understand why equity markets might crash if we are to understand whether commodities are likely to diversify that risk.

Figure 8: Commodities react to recessions in different ways



Data 1970–2016; log scale, rebased to 100. Source: NBER and S&P GSCI.

Commodities have a long track record of delivering returns which are relatively uncorrelated with equities but this relationship varies over time. At times they have generated positive returns when equities have been crashing but not on every occasion. Investors need to be realistic in what they expect from commodities from a diversification standpoint. They are not a tail-risk hedge but, as we will show, they can improve risk-adjusted returns.

It is not necessary for commodities to be negatively correlated with equities for them to add value in a portfolio context. Combining two asset classes with a correlation of less than one can lead to a reduction in the overall risk of the portfolio as shown in Figure 9 (overleaf). Assuming both equities and commodities have a volatility of 17% a year⁶ then, so long as commodities are not perfectly correlated with equities, even a small allocation alongside an equity-heavy portfolio can result in a reduction in overall portfolio volatility.

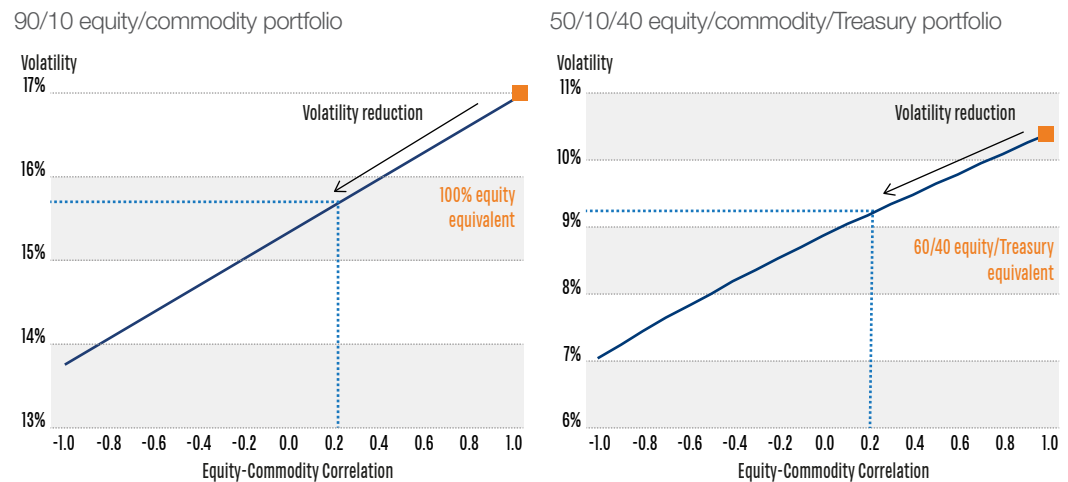
⁵ “Investor Interest and the Returns to Commodity Investing”, Geetesh Bhardwaj, Gary B. Gorton and K. Geert Rouwenhorst, *Journal of Portfolio Management*, Spring 2016, vol. 42, no. 3.

⁶ Volatility of BCOM since inception is in line with equities. This can be contrasted by GSCI which has been slightly more volatile than equities.

For example, assuming a 0.2 correlation between equities and commodities (a reasonable assumption based on historic experience illustrated in Figure 7), then adding a 10% commodity allocation to an equity portfolio could result in a 7.6% reduction in overall portfolio volatility from 17% to 15.7% (Figure 9, left-hand chart). Alternatively, for an investor in a balanced 60/40 equity/US Treasury portfolio, replacing 10% of the equity allocation with commodities (Figure 9, right-hand chart) could result in an 11.5% reduction in portfolio volatility (10.4% to 9.2%)⁷. In reality investors are likely to be invested in more diversified portfolios, but we use these as simplifying examples.

The lower the correlation between equities and commodities, the bigger the reductions in risk as the charts in Figure 9 show. The problem is that correlations are highly unstable over time. What is clear however is that it is not necessary for the correlation to be negative for commodities to have a positive impact. Commodities can contribute to effective portfolio risk reduction even on the basis of reasonably conservative correlation assumptions.

Figure 9: Adding commodities can reduce portfolio volatility



Source: Schroders, for illustration only.

Portfolio impact

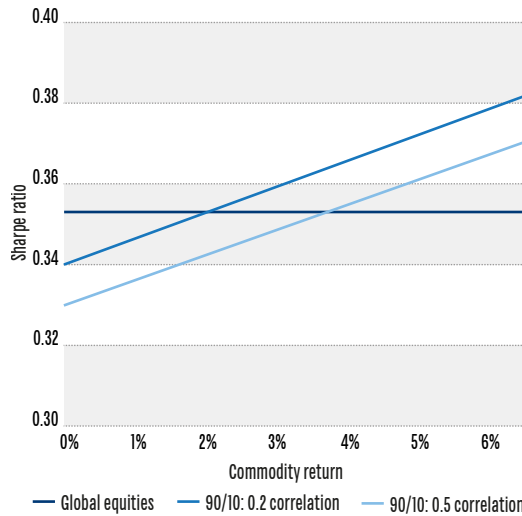
As shown above, commodities can offer some appealing characteristics distinct from returns. An obvious question is how good do returns have to be for commodities to merit a place in portfolios? The surprising answer is not that good. The first chart in Figure 10 (overleaf) shows the Sharpe ratio (a measure of risk-adjusted performance where a higher number is better) for a 90/10 equity/commodity portfolio, assuming different commodity returns and two different levels of commodity-equity correlation. The horizontal line shows the Sharpe ratio for a global equity portfolio as a comparison. If the commodity-equity correlation is 0.2 then commodities only have to generate returns of 2% a year or more to improve risk-adjusted returns compared with the equity-only portfolio. Even on the more conservative assumption that the correlation is only 0.5, commodities only have to generate returns of around 4% to improve risk-adjusted returns.

By the same token, a 50/10/40 portfolio with a 10% allocation to commodities and a correlation of 0.2 also only has to generate returns of 2% a year to improve risk adjusted returns. On the more conservative correlation assumption of 0.5, then returns of only around 3.5% a year are required to improve risk-adjusted returns. The reality is that one does not have to take a particularly bullish view of the outlook for commodities for them to justify their place in a portfolio.

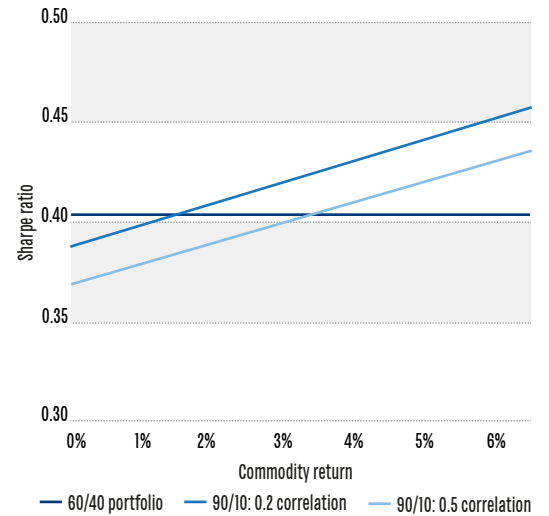
⁷ Assuming a correlation of 0 between equities and Treasuries and -0.1 between commodities and Treasuries and assuming Treasuries have a volatility of 5%.

Figure 10: Even pedestrian performance can improve efficiency

Global equities vs 90/10 equity/commodity portfolio



60/40 equity/Treasuries vs 50/10/40 equity/commodity/Treasury portfolio



Source: Schroders, for illustration only.

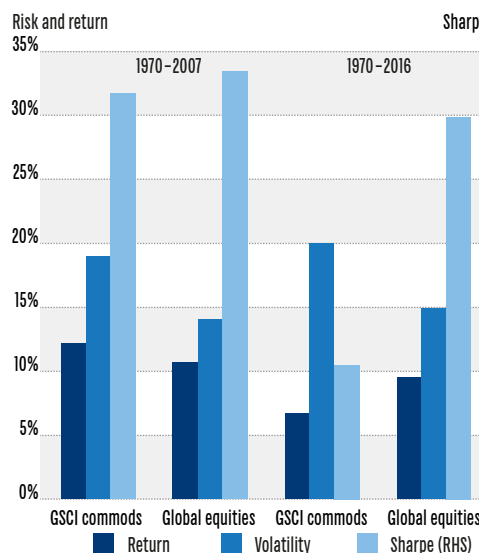
Reason 3: Potential for attractive risk-adjusted returns

We would argue that there is a case for commodities' inclusion in a portfolio even on the basis of a relatively muted return outlook. However, current conditions suggest that they could potentially do much better than we have suggested thus far.

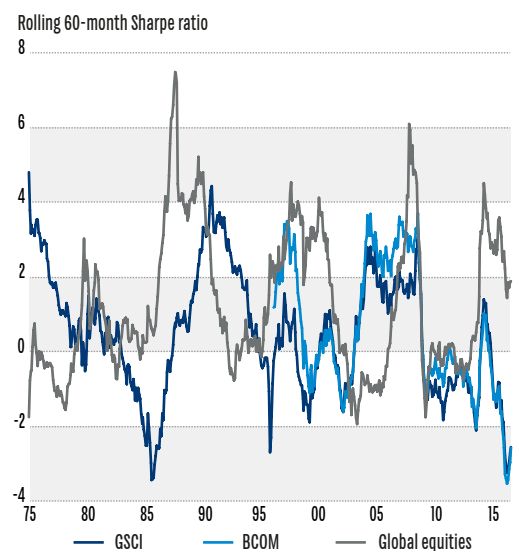
Up until the end of 2007, the widely tracked GSCI commodity index had generated annualised returns of around 12% a year since inception in 1970, with a volatility of just below 19%. This compared with returns of almost 11% a year from global equities over the same period, although with a lower volatility of just over 14%. In risk-adjusted terms, the returns were broadly comparable. Both asset classes had a Sharpe ratio of just over 0.3 (first two sets of bars in Figure 11, left-hand chart).

However, commodities' long term track record has been undermined by recent experience. Over the past 46 years, the GSCI index now lags equities in performance terms, and also displays greater volatility. The Sharpe ratio has fallen accordingly (second two sets of bars in Figure 11, left-hand chart). The GSCI, however, suffers from a significant concentration in the energy sector; volatility for a more diversified portfolio similar to the Bloomberg commodity index has been more on a par with equities. However, the Bloomberg index has a shorter track record, having only been established in 1991, and over this time period returns on both benchmarks have fallen not just behind equities, but also behind cash.

Figure 11: The historic performance of commodities has been mixed



Data 1970-2016. Source: Datasteam, GSCI and MSCI.



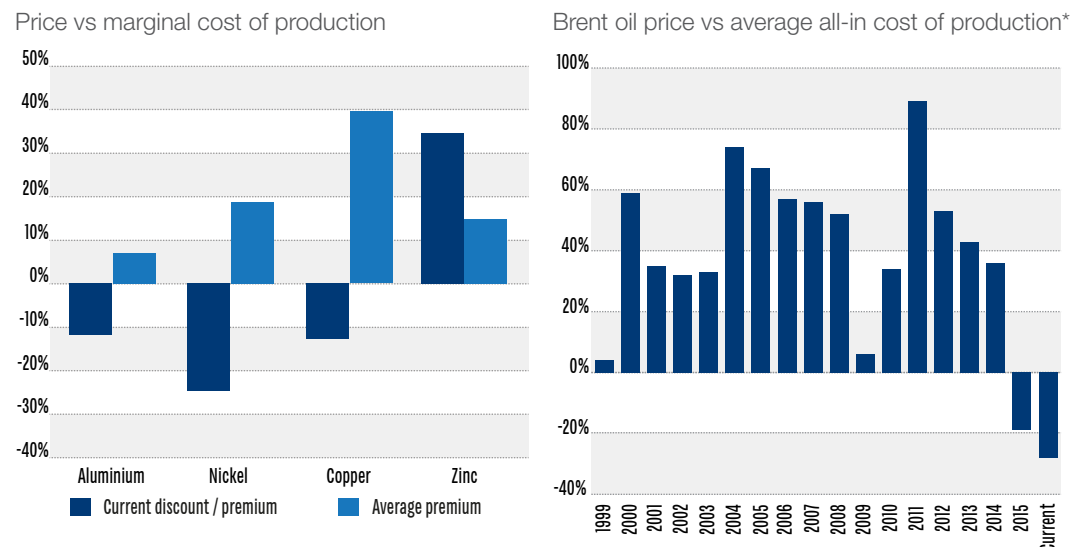
Data 1970-2016. Source: Bloomberg, Datasteam, GSCI and MSCI.

At best, long term historic risk-adjusted returns look uninspiring and very recent experience has been poor. However, judging any investment’s future prospects by extrapolating the recent past is unlikely to be a profitable strategy. Quite the opposite. Long term returns are more likely to benefit from buying after a period of weakness than after a period of strength.

We would highlight a few indisputable facts that support a better return outlook for commodities:

- Commodity prices have fallen considerably and are very cheap in a historic context.
- After these declines, the prices of some commodities are now very low relative to their costs of production.
 - Aluminium, nickel and copper prices, together representing over 80% of the industrial metals complex, currently trade below their marginal costs of production (Figure 12, left-hand chart). In the most extreme case, over 50% of global nickel supply cannot be profitably mined at current prices.
 - In energy, the oil price is currently below the average industry cost of production (Figure 12, right-hand chart). Furthermore, return on capital among the major oil companies, which represent 30% of global production, recently fell to an all-time low. Even in the late 1990s, when oil prices fell to \$10/barrel, oil companies were able to earn a return on capital that was around three times as high as they can at the moment.
- Commodities have underperformed equities substantially over recent years and have consequently cheapened on a relative basis.

Figure 12: Commodities now sell for less than they cost to produce



*Including financing costs.
 Source: Datastream, Schroders. Averages calculated over 1984–2015 period other than gold which is 1993–2015.
 Current data as at 31 July 2016.

So, we would argue, there has rarely been a cheaper time to buy commodities. But they also have certain other characteristics that investors should bear in mind.

Implementation considerations

Commodity investments are typically made using futures contracts as financial investors generally do not have the ability or the desire to store physical commodities. When a futures contract nears expiry, to avoid being forced to take delivery of the commodity, the contract must be closed out and a longer-dated contract purchased. This is known as “rolling” the futures contract. When the commodities futures curve is upward sloping, referred to as being in contango, this results in a loss, (as later dated contracts are more expensive than shorter dated contracts). By contrast, a gain can be earned when the curve is downward sloping, and the curve is said to be in “backwardation”.

There is considerable debate about the long-term importance of the shape of the futures curve for commodity investors. The academics Bhardwaj, Gorton and Rouwenhorst found that between 1959 and 2014, in any given month, around two-thirds of commodity markets are in contango on average. This is confirmed by the left-hand chart in Figure 13, which shows most commodities normally provide negative roll returns. However, they also found that this was not a barrier to investors earning positive risk premiums (returns in excess of US Treasury bills), as Keynes had originally argued in his *Treatise on Money*⁸.

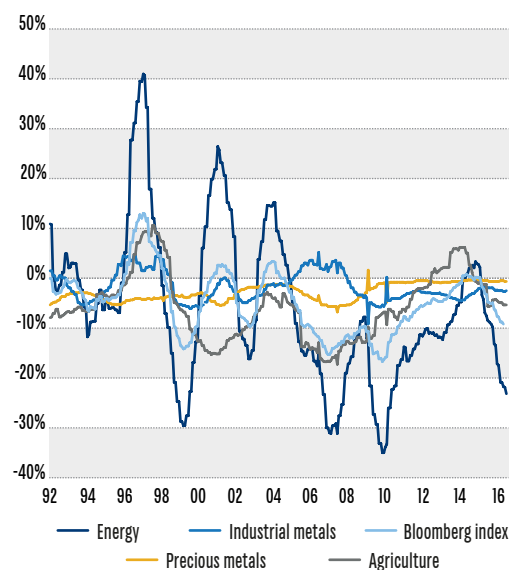
It has been said that the prevalence of markets in contango has been driven by the financialisation of commodity trading, but Bhardwaj, Gorton and Rouwenhorst show this to have been the case well before commodities caught investors’ attention. When the market is in contango, commodity investors face additional costs when rolling commodity future contracts forward. On average, this rolling cost has eroded over 6% a year from returns on the Bloomberg index since 2000 and around 5% from the GSCI index. Roll returns were also negative in the 1990s, but to a lesser extent – median 12-month roll returns were -1% for the GSCI and -3% for the Bloomberg index.

Even if future experience is not quite as painful as in recent years, investors in traditional benchmark tracking products should be warned that roll could be a drag on returns over the long run. However, there are two important mitigating factors.

- Firstly, although negative roll returns are a drag on returns, it does not follow that returns have to be negative if spot prices are rising. There has actually been very little relationship between roll returns and total returns on the Bloomberg Commodity Index since inception (Figure 13, right-hand chart). In fact, on average total returns have historically been positive in months when roll returns have been negative – this has been true in both the pre- and post-2000 environments.
- Secondly, actively managed funds and some alternative commodity indices can limit or avoid negative roll returns entirely through more effective curve and sector positioning strategies.

Figure 13: Roll returns appear to be a headwind...

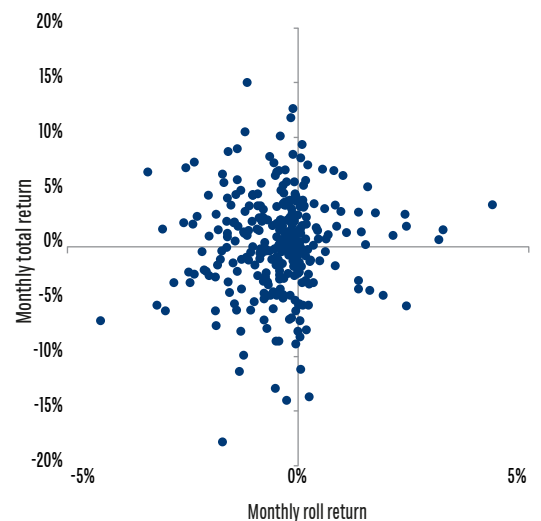
Rolling 12-month roll returns



Source: Bloomberg Commodity Indices, Datastream.

...but this needn't be a barrier to positive returns

Roll returns vs total returns, BCOM



8 A Treatise on Money, John Maynard Keynes, 1930, chapter 29.

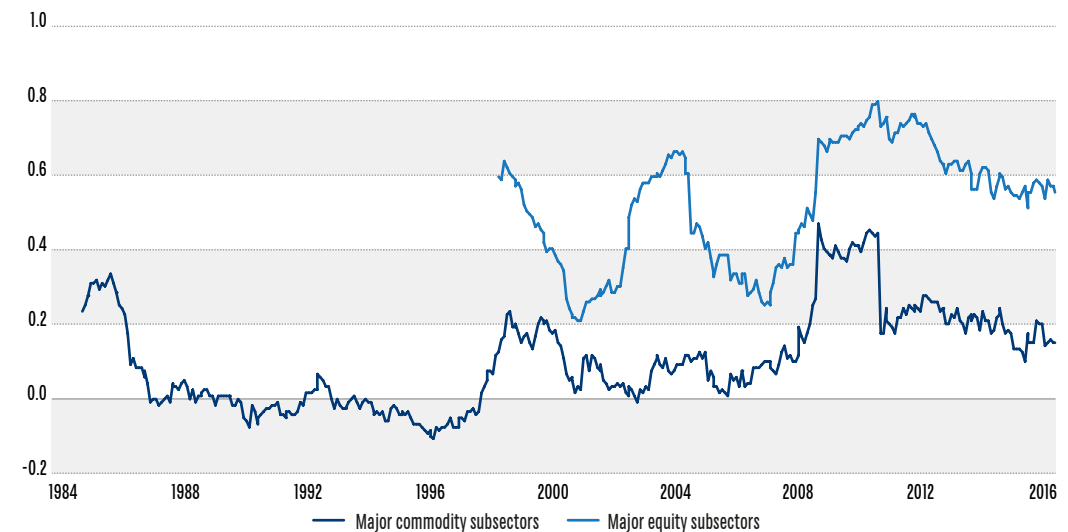
Fertile ground for active managers

In general, commodities markets offer plenty of potential for active managers to add value. These include:

- Significant sums of money are invested in passive funds tracking well known benchmarks which rebalance in a mechanistic and well-documented way. These funds buy and sell in a prescribed way each month, creating opportunities for active managers to profit.
- Different commodity sectors perform better or worse at different stages of the economic cycle. For example, energy commodities have historically generated relatively high risk-adjusted returns in the expansion and slowdown phases, while industrial metals have stood out earlier on in the recovery phase. In comparison, agriculture is generally seen as the sector least connected to the economic cycle. These differences occur as many markets are driven by unique fundamentals. For example, agricultural crop yields are often impacted by weather patterns, a factor totally unrelated to global demand for industrial metals. This relatively low correlation between the main commodity sectors creates opportunities to add value through sector selection (Figure 14).
- Many commodities are poorly-researched, which means there should be excellent opportunities for skilled investment managers. Our own experience backs up this assertion. Our actively managed diversified commodity strategy has outperformed its benchmark by 4.6% a year on average over a period longer than 10 years (November 2005-April 2016).
- Commodity investments are made using futures investments. As described above, when curves are upward sloping, there is a loss from rolling short-dated contracts into longer dated. The opposite is true when futures curves are downward sloping. A profitable strategy can be one which focuses on those markets which have downward sloping curves.

Figure 14: Less correlation offers more opportunity

Average intra-sector correlation, rolling 24 month basis



Source: Datastream, GSCI, and MSCI.

Conclusions

We believe we have shown that there is a particularly interesting opportunity in commodities. They are one of the few asset classes that look genuinely cheap, both with respect to their own history and their costs of production. For investors concerned about or exposed to higher inflation, they provide protection that few other asset classes have been able to demonstrate. Moreover, they offer beneficial diversification to a portfolio (even if they may not provide a cushion against the worst bear markets). The result is that, even without making heroic assumptions about their growth prospects, commodities should be able to improve expected risk-adjusted returns in multi-asset portfolio. And, given the inefficiencies of the asset class, they should provide a rich vein of opportunities for skilled active managers to exploit.



Schroders

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