

**INVESTING IN COMMODITIES IN A DIVERSIFIED WORLD**

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*Commodities were once eschewed by many investors as too risky for serious consideration. However institutional investors are increasing allocations to commodity-related investments in search for alpha outside of traditional equity markets. This research paper reviews the key reasons why investing in commodities provide numerous benefits and illustrates how institutional investors are employing commodity-related investments in portfolios and the implications for those not currently doing so.*

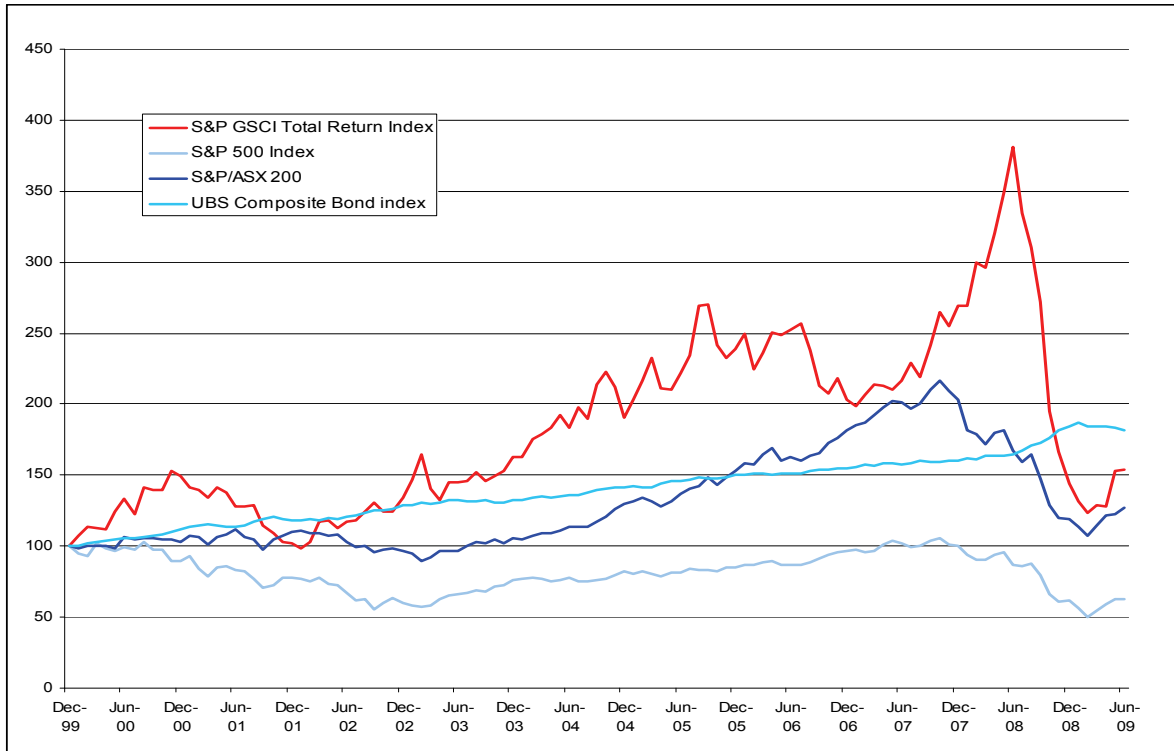
In recent years, however, there has been a profound re-appraisal by many global financial market players of the merits of commodity-related investments. Interest is growing, not only in the companies that extract, refine, transport and market commodities, but directly in the underlying commodities themselves, their financial derivatives and especially in indices of those commodities.

Commodities have attracted attention for a number of reasons, not only for their strong price performance, but their lack of correlation with mainstream assets such as stocks and bonds. Allocations to commodity-related investments are rapidly rising not only with traditional commodity investors (specialist hedge funds) but with a broader range of investors in search of alpha outside traditional equity markets. In addition, commodities are more accessible than ever before with a wide universe of products and vehicles including medium-term notes (MTNs), exchange-traded products (ETPs) and modified indices.

**WHY INVEST IN COMMODITIES?****Performance**

The global consumption boom, increasing geopolitical pressures, supply constraints and rising production costs led to soaring commodity prices in the early-mid 2000s.

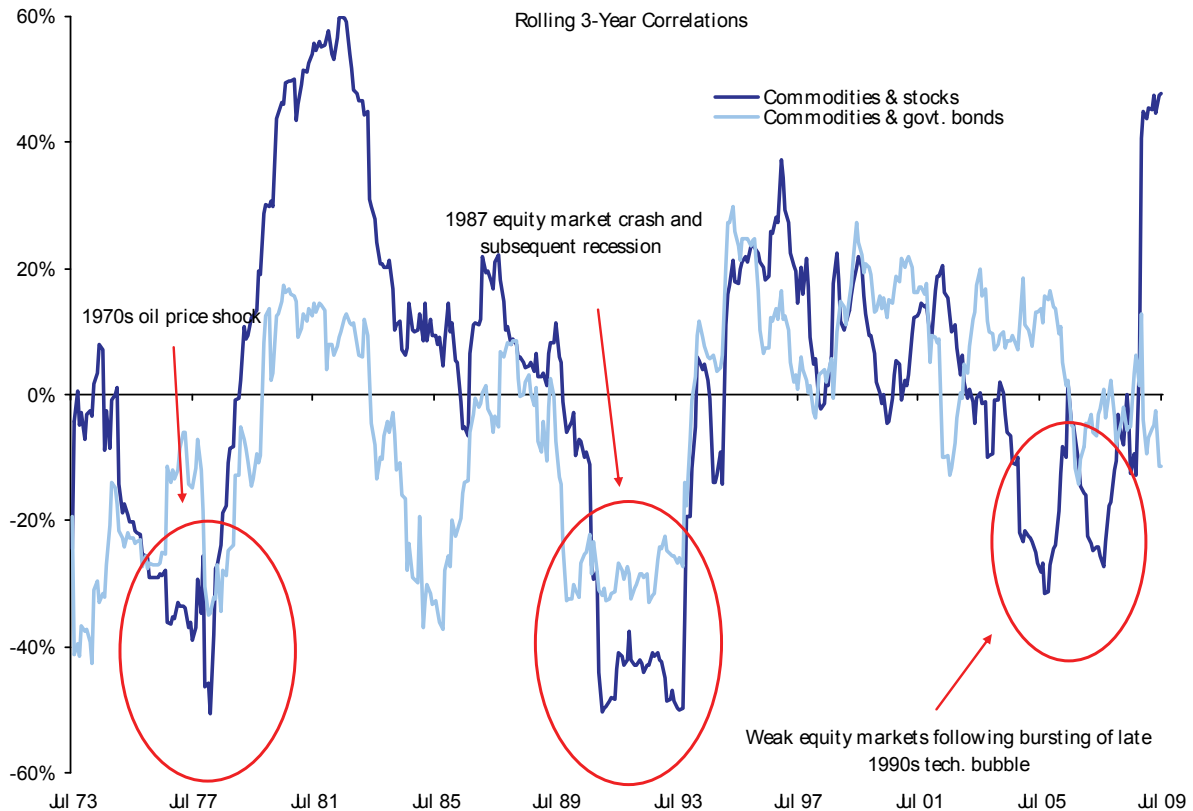
Figure 1 shows the consistent outperformance of commodity markets over equity and bond markets over the last 10 years, until the start of the sharp price decline of the commodity market in July 2008 that continued, unabated, until March 2009.

**Figure 1: Commodity, equity and bond market comparison 31 December 1999 to 30 June 2009**


Source: Bloomberg

### Low Correlation/Diversification

Commodities are often included in portfolios for their diversification benefits, given their lack of correlation with mainstream assets such as stocks and bonds. In particular, commodities have been uncorrelated with traditional assets during periods of economic downturn, as shown in Figure 2. During the 1970s oil price shock, their correlation with stocks peaked at -51%, and at -35% with government bonds. Similar results can be seen during the 1987 equity market crash and during weak equity markets following the bursting of the tech bubble in the late 1990s.

Figure 2: Rolling 3-year correlations<sup>1</sup> 31 July 1973 to 31 July 2009


Source: EcoWin

Over the 10 years to 30 June 2009 in Australia, the S&P GSCI exhibited a -26% correlation with the UBS Composite Bond Index and a +27% correlation with the S&P/ASX200. This positive correlation with the local equity market is unsurprising given the dominance of resource companies in the S&P/ASX200.

However, with the declines of commodity markets in 2008, particularly a 62.4% drop in the S&P GSCI from 1 July 2008 to 31 December 2008 (shown in Figure 1) and positive correlations with equity markets over the period (both exhibited negative performance), commodities have been accused of having lost the very diversification benefits that attracted investment in the first place.

Correlations between commodities and equities may well increase over the short term. However, correlations should not rise over the longer term if the asset classes are driven by different factors. The average monthly correlation between S&P GSCI and S&P 500 since the 1970s has been just 4%.<sup>2</sup> This should come as no surprise, as commodities respond differently to equities and bonds to

<sup>1</sup> With S&P 500 and JPMorgan Government Bond Index.

<sup>2</sup> From 31-Mar-73 to 31-Mar-09. Source: Bloomberg

changes in market and economic conditions. For example, commodities are affected by factors including supply-demand, technological advances, weather and the depletion of finite resources. Moreover, different commodities have low correlations with each other. Figure 3 highlights the correlations between seven individual commodities. These suggest that over the long term, an allocation to a *diversified* commodity strategy would reduce overall volatility thus improving the risk-adjusted return of the strategy.

Figure 3: Historical correlation of monthly returns<sup>3</sup>, 31 December 1999 to 30 June 2009

|                   | Corn | Silver | Crude Oil | Copper | Wheat | Gold | Unleaded Gas |
|-------------------|------|--------|-----------|--------|-------|------|--------------|
| Corn              | 1    |        |           |        |       |      |              |
| Silver            | 0.26 | 1      |           |        |       |      |              |
| Crude Oil         | 0.13 | 0.23   | 1         |        |       |      |              |
| Copper            | 0.16 | 0.39   | 0.36      | 1      |       |      |              |
| Wheat             | 0.53 | 0.28   | 0.16      | 0.21   | 1     |      |              |
| Gold              | 0.18 | 0.71   | 0.22      | 0.31   | 0.29  | 1    |              |
| Unleaded Gasoline | 0.07 | 0.21   | 0.82      | 0.36   | 0.09  | 0.22 | 1            |

Source: Bloomberg

With the rapid pricing-in of downgrades to global growth forecasts from mid-2008 to mid-2009, combined with global uncertainty, reduced liquidity and increased risk aversion, commodity price volatility has been high. However, it has not been any more or less than any other major asset classes. It is because the volatility of commodity returns is not strongly correlated with that of other assets that the asset class continues to provide portfolio diversification benefits.

### Constructing an Optimal Portfolio

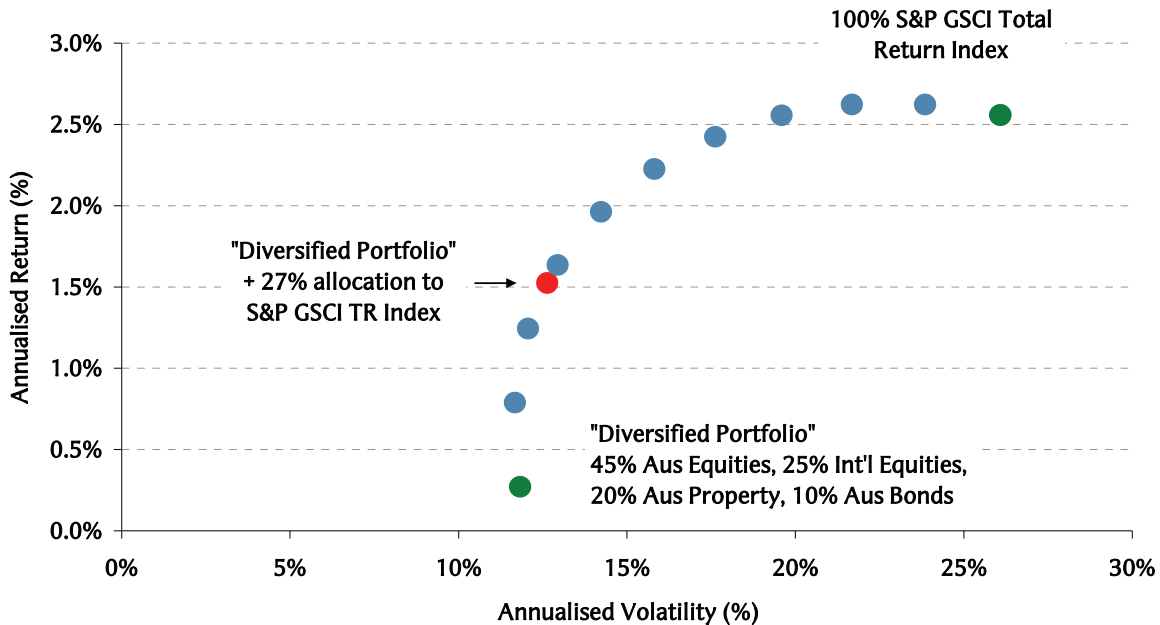
Studies by JP Morgan (2006) and Gorton and Rouwenhorst (2005) suggest that inclusion of commodities in a diversified portfolio can significantly improve the portfolio's risk/return profile.

To examine the effect of adding commodities to a diversified portfolio, we have analysed the historical volatility and return characteristics of a diversified portfolio with incremental allocations to commodities of 0% to 100%. Figure 4 simulates the effect of adding a commodities allocation to a diversified portfolio of 45% Australian equities, 25% international equities, 20% Australian property and 10% Australian bonds<sup>4</sup>. As an allocation to commodities is introduced to the diversified portfolio in increments of 10%, the return increases while the risk remains static, demonstrating the diversification benefits of the commodities allocation.

<sup>3</sup> Individual commodity performance is represented by the sub-sectors of the S&P GSCI Total Return Index.

<sup>4</sup> The commodity series is represented by the S&P GSCI, the Australian equities series by the S&P/ASX 200 Index; the international equities series by the MSCI World ex-Australia Index; the Property Series by the S&P/ASX 200 Property Index; and the bond series by the UBS Australian Composite Bond Index.

Figure 4: Investing in commodities may potentially improve a portfolio's efficient frontier



Source: Bloomberg, Barclays Capital, as at 30-Jun-09

The optimal allocation to commodities is the point on the frontier where the risk-adjusted return, as measured by the *Sharpe ratio*<sup>5</sup>, is greatest. A commodities allocation of some 27% would have resulted in an annualised return of 1.52% per annum, for an annualised standard deviation of 12.64%. Without the commodities allocation, the diversified portfolio would have yielded 0.27% per annum with an annualised standard deviation of 11.83%. Ibbotson Associates (2006) placed the optimal percentage of commodities in a diversified portfolio at between 22% to 29%<sup>6</sup>.

The long-term benefits of including commodities in a portfolio are not due to the *negative correlation* they exhibit compared to other asset classes but rather to the *lack of correlation* they display. More recent events do not undermine the *long-term* lack of correlation between commodities and other assets, as evidenced in Figure 2. The use of commodities in combination with traditional assets can continue to reduce overall long-term portfolio risk while increasing upside potential.

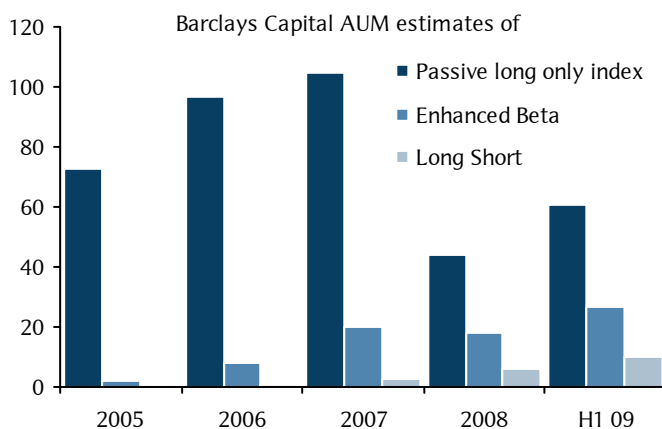
<sup>5</sup> The Sharpe ratio is calculated as the portfolio's annualised return in excess of the risk-free rate divided by the standard deviation of the portfolio's excess returns. The risk free rate in this example is the Australian 1-month BBSW. The Sharpe ratio is a relative measure of a portfolio's return-to-risk ratio, and can be thought of as the amount of excess return generated for each unit of risk assumed. The greater the ratio, the better the historical risk-adjusted performance.

<sup>6</sup> Based on data from 1983-2006

## THE EVOLVING LANDSCAPE OF COMMODITY INVESTING

Traditionally, commodity indices (based on baskets of commodity futures) were one of the most popular vehicles for investors to gain access to the commodity markets. Index funds that track the indices are long only, and all transactions occur in the futures market (that is, there is no physical ownership of the underlying inventory). However, being long only, index funds are susceptible to poor performance in falling markets, evidenced by the 62% fall in the S&P GSCI from 1 July 2008 to 31 December 2008 (shown in Figure 1). In addition, large index funds do not sell short. As a result, they are unable to benefit in the same way as long-short strategies have the potential to. Investors have been looking further afield to obtain returns in all market conditions. As a result, the popularity of the more traditional methods of commodity investment, namely passive long-only indices, has diminished over the past few years (Graph 4).

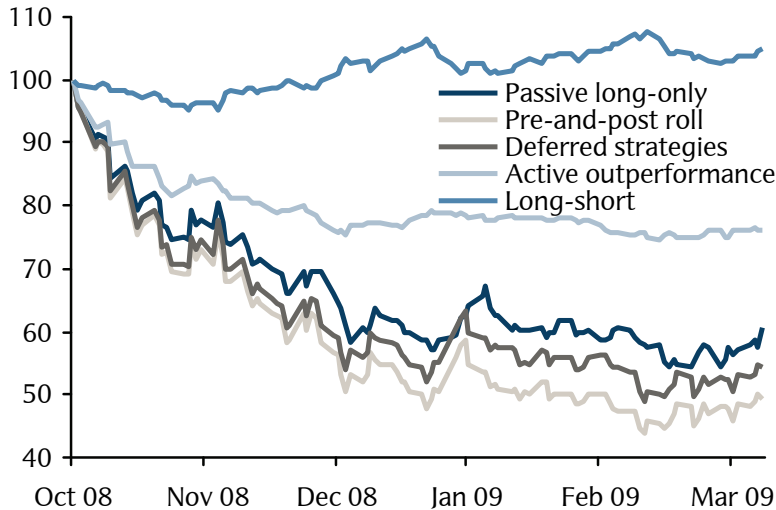
Figure 5: Commodity investing via Indices – global assets under management (\$US)



Source: Barclays Capital

New generation commodity strategies have been developed, in part to address the problems of roll yields and contango curves in rising commodity markets that can inhibit performance of long-only indices. While designed to outperform the benchmark, pre- and post-roll-period indices (often referred to as enhanced beta) have not however significantly improved returns as shown in Figure 6. Other investment strategies such as deferred contract indices (typically three to four months forward) have also been subject to negative returns, falling by over 45% in the same period, similar to the passive long only indices, again shown in Figure 6. Actively managed outperformance indices have fared better than the benchmark, however they too have failed to generate a positive return. On average, while passive long-only commodity indices almost halved in value over the six months to 31 March 2009, most indices aiming to outperform fell by about 25%.

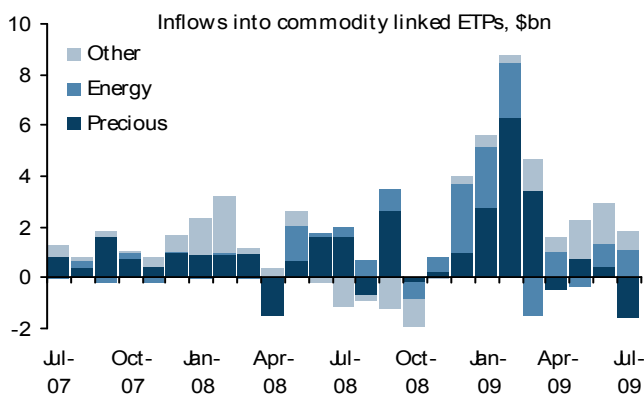
Figure 6: Commodity Index performance from October 2008 to March 2009



Source: Bloomberg, Barclays Capital Research

There was one exception – long-short index strategies. During the worst of the Global Financial Crisis (October 2008 to March 2009), long-short strategies outperformed convincingly. Most provide exposure to a smaller number of commodities, traded long or short according to signals from sets of proprietary indicators, and most are diversified to avoid overexposure to a single commodity, with a greater weighting to more liquid commodities. Although assets tracking these indices are relatively small, they have gained favour over the last few years (Figure 5). In markets characterised by extreme volatility and divergent trends, these indices may outperform conventional index strategies.

Figure 7: Commodity ETPs have dominated global net inflows



Source: Bloomberg, ETP issuer data, Barclays Capital

**Due Diligence Forum Research Paper**

Other products such as ETPs and MTNs have also captured investor interest. ETPs are an all-encompassing terminology used to capture exchange-traded funds (ETFs), exchange-traded notes (ETNs), and exchange-traded commodities (ETCs), offering a range of individual commodities and different index-tracking securities. MTNs are a form of corporate debt financing and mostly encompass structured products, generally a pre-packaged investment strategy based on derivatives over an individual or basket of commodities.

The evolution of ETPs has been extraordinary. The first commodity ETP was launched just six years ago, and by 30 June 2009, there were more than 180 ETPs listed on different exchanges worldwide with nearly US\$65bn assets under management. Inflows in January and February 2009 totalled US\$14.3bn, compared to US\$15.5bn for the whole of 2008 (Figure 7). February 2009 was an all-time high for commodity ETP net inflows at US\$8.7bn. Gold was the primary beneficiary and the dominant theme in commodities in Q1 of 2009, as it was considered as a safe haven by investors. However, energy ETPs have also risen fast, receiving net inflows of US\$4.7bn during January and February 2009. The greatest criticism of ETP investing, however, is that much of the current exposure gained via these products is targeted at the front end of futures' curves, thereby incurring high carry costs, and restricting performance returns.

Despite recent challenging times across all asset classes, investors maintain a very positive outlook on commodities over the long term. A survey of investors at the Barclays Capital Annual Commodity Conference in February 2009<sup>7</sup> in Spain revealed that 33% expected the average commodity benchmark index return over the next five years to be 5%-10% per annum, with 35% expecting over 10% per annum. Nearly 4 in 5 investors (79%) planned to initiate or increase direct exposure to commodities markets over the next three years, and 75% considered 6% or more to be the appropriate weighting for commodities in a portfolio. Only 6% of those surveyed said they had cut their exposure completely over the 12 months to February 2009. Most had held their exposure constant or increased it.

The recent downturn in the commodity markets may be considered by some as evidence that commodity allocations are not warranted in portfolios. This is incorrect. Commodities provide long-term return, diversification and low correlation to traditional asset classes, making them a welcome addition to a diversified portfolio, illustrated by the above analysis.

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<sup>7</sup> 260 of Barclays Capital's institutional clients were surveyed



**SOURCES**

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