COMMODITY DERIVATIVES

ARE THEY AN OPTION IN PORTFOLIO MANAGEMENT?

Despite the longer-term recovery in commodity prices, investment by superannuation funds in the resource sector's underlying assets remains a hard game to play. DAVID HUGHES points out that as funds build up large resource-sector portfolios, there will be an increasing responsibility for trustees to become familiar with the commodity derivative instruments available to manage sharemarket-commodity price cycles.

Many Australian fund managers are interested in the concept of accessing the resource sector's underlying assets but remain unsure of the sanction under the terms of their charters and the acceptability of derivative instruments by the fund trustees. There is also concern about understanding the instruments, their pricing, their liquidity, the asset class to which they belong and how to benchmark them.

To many investors, the equities markets and the whole financial futures complex, including out-and-out bond and interest rate speculation, is "easier" in terms of understanding the product and having visible liquidity even where it may be difficult to assess fundamental value.

The increasing participation by producers and consumers in managing the risks of their physical exposures, coupled with capital being built up by specialist commodity funds, has given the commodity markets a dramatic increase in liquidity. With this liquidity has come greater pricing efficiency in exchange-traded instruments and a broader application of dedicated over-the-counter products.

Non-specialist funds managing large resource-sector portfolios should be giving greater consideration to the strategic use of commodity derivatives to better manage sharemarket-commodity price cycles and to hedge against market and company-specific risk, particularly during periods of active price appreciation in the underlying assets.

An important distinction must be made between the use of commodity derivatives to diversify resource portfolios and investment in commodities as an asset class.

The specialised commodity funds exploit their broad charter, flexibility and expectation of high returns to take active exchange-traded positions in the various commodity markets. This is not the starting domain for Australian superannuation funds. Commodity derivatives that can both capture price appreciation in the underlying asset and protect capital should, initially, be the preferred instruments.

WHICH ASSET CLASS?

Many investors believe they can gain access to the full benefits of commodity exposure by directly purchasing resource stocks. They also believe that investment in companies whose income depends substantially on the commodity markets can achieve the same end.

There is evidence that this is not the case. Historically, the Australian Stock Exchange All-Resources Accumulation Index has been highly correlated with the Australian Stock Exchange All-Industrials Accumulation Index. It is partly due to this linkage that general market risk can have a negative effect on resource equities.

During 1994 and 1995 many commodity prices showed record gains due to strong US industrial production and a recovery in the economies of OECD countries. London Metal Exchange (LME) inventories, which had been building up since 1988, declined dramatically, fuelling the base metals price increases. To control growth and inflation, global interest rates tightened.

The consequence, particularly in 1994, was a volatile bond and interest-rate environment which hurt most equity markets. In this case, market risk...
weighed in more heavily than the commodity price increase and, in contrast to the commodities, shares in resource stocks declined in line with the overall market.

Depressed resource-sector returns during this period reflected the inability of many funds to capture the sustained price increase in the resource companies' underlying assets.

In addition to market risk, company-specific risk can lead to investors failing to benefit from commodity price rises. This situation has occurred with Mt Isa Mines (MIM), one of the world's largest copper mines; during a period of record copper prices in 1994 and 1995, MIM's share price has lagged. This is largely attributable, *inter alia*, to non-performance of certain assets, industrial relations disputes and production setbacks at the company's main operating base in Mt Isa.

The effect of market risk and company risk on MIM's share price is illustrated in Figure 1.

Although commodity-share price cycles may be managed within an existing equities portfolio, many investment advisers emphasise the attributes of a new asset class created for commodities. These attributes usually are:

- they represent an asset class with a low correlation with other assets held in a portfolio – typically bonds and equities;
- as an asset they correlate with price inflation and so the volatility of real returns decreases; and
- commodities as an asset class are capable of generating a desired level of return.

The proposal to set up a new asset class has not received widespread endorsement. The main impediments appear to be:

**Allocation continuity**

The establishment of a new commodity asset class would normally require that funds are allocated and managed continuously. Without continuity, the efficiency of keeping the asset class open would be open to question.

Many investors believe it may not be prudent to be fully invested in commodities at all times. To justify a new asset class, the fund would need to consider an investment in a wide range of energy, metals and agricultural commodities.

**Management**

Obtaining the sanction to create a new asset class, managing the allocation of funds, and new paperwork is expensive in both management time and costs.

**Benchmarking**

Which benchmark would be used to measure returns for this new asset class and how would performance be measured against that of one's peers?

**WHAT ARE THE INSTRUMENTS?**

**Exchange-traded and OTC**

Investment funds which develop a strong understanding of the commodity markets take active trading positions in exchange-traded futures contracts and options over these futures.

Unlike the financial markets generally, commodity markets feature specialised exchanges in which are traded a mix of cash-settled and deliverable futures contracts. A further feature is the unique commodity-specific characteristics of the forward price curve.

There are many commodity exchanges around the world through which producers and consumers risk-manage their physical exposures. However, the preferred commodity contracts in which the large funds will participate are more restricted.

Exchange-traded commodity futures contracts generally share a common legal basis, although price settlement influences for the deliverable contracts will vary.

Investors seeking to take synthetic positions in the underlying commodities of their choice may take active long (bought) or short (sold) futures positions, usually in the nearby months, or take intermonth spread positions intended to capture running yields from price behavioural trends in the forward contracts.

The metals markets are a little more tricky. Investors taking active trading positions in copper and precious metals have in the past favoured Comex or, in the case of gold, the Tokyo Commodity Exchange's gold futures contract. However, the LME is now taking a larger share of the market, reflecting increased use by both industry and non-industry players. The specialist commodity funds have recently increased their investment

![Figure 1: MIM vs LME Copper](image-url)
in the LME copper contract.

With the increase of liquidity in the commodity futures contracts, the derived OTC markets have broadened considerably, giving investors a new range of potential instruments.

OTC options are now more widely accepted. Asian or average-rate options have become popular with trade participants and are no longer classified as "exotic". These options, which enable the participants to set profit levels over the duration of the contract, are cheaper than "vanilla" contracts because taking the average price as the strike price minimises the effect of volatility over the option’s life.

The increase in liquidity in LME base metals is shown in Figure 2.

Turnover in the Nymex WTI crude oil futures contract is now about 27 million contracts a year – equivalent to about 90 million barrels per trading day, or almost twice the daily world production of crude oil. It is the most heavily traded commodities contract in the world, and is one of only two commodity contracts that features in the 20 most-traded futures and options contracts (the other being the Tokyo Commodity Exchange’s gold futures contract).

**INVESTMENT ALTERNATIVES**

**Commodity Indexes**

Unlike actively managed futures involving constant trading, the main feature of commodity indexes is that they are passive investments – a consistent long position.

Commodity indexes and derivatives written on these indexes have introduced a new type of investor, the non-specialist fund which would not have previously considered investing directly in commodities. The indexes can differ in five basic ways:

- the commodities that make up the index (these can be selected according to trading volumes in their respective futures contracts);
- their relative weighting;
- the type of averaging (arithmetic or geometric);
- the method used to determine the weightings; and
- the type of return.

Indexes in the broad-based category are the Goldman Sachs Commodity Index (GSCI), the Daiwa Physical Commodity Index (DPCI), the Knight Ridder Commodity Research Bureau (CRB) and the Investible Commodity Index (ICI) produced by International Management. Contracts include energy, livestock, crops, base metals and precious metals.

In contrast, Merrill Lynch’s Energy and Metals Index (Emnet), the Bankers Trust Commodity Index (BTCI) and the J.P. Morgan Commodity Index (JPMCI) are more narrowly based, placing greater emphasis on industrial commodities. Typical weightings are energy 55%, precious metals (mainly gold) 23–28% and base metals 17–22%.

A major problem when comparing the indexes is the inability to compare the returns on a like-for-like basis. Some are price-return indexes, which measure the changes in nearby futures contracts. Others are total-return indexes, whose returns comprise price return plus the return from rolling futures contracts into the following month and the return from the collateral posted against the futures position (usually the risk-free rate of return). Once the returns can be properly compared, the difficulty of lack of historic futures prices arises.

One advantage of the broad-based GSCI is that it is listed on the Chicago Mercantile Exchange, where investors can gain exposure to the index through futures, options or swaps.

**Warrants**

Commodity warrants can take various forms but essentially these are securities containing embedded call options over a selection of the underlying assets.

The most common of these are base-metal basket warrants which have been structured to include LME call options over principal metals. Warrants have also been issued with calls over a mixture of base metals and typically WTI crude or base and precious metals.

The embedded option may be American or European-style with an exercise period of six months to two years. The payout characteristics can vary widely, subject to the option structure, mix of call options, digital or range, call spreads, etc.

Funds have been attracted to these instruments, particularly publicly listed warrants such as Robert Flemming & Co Ltd’s base-metal warrant listed on the Hong Kong Stock Exchange.

**Commodity-linked notes (CLN)**

CLNs can be described as protected commodity growth instruments. They provide returns linked to commodity price performance while guaranteeing capital if commodity prices fall. The instrument essentially transposes the commodity basket warrants into securities issued by banks and financial institutions. Features of these instruments, as issued to Australian investors, are:

- the products are capital-protected zero-coupon or low-coupon medium-term notes linked to a basket of commodities;
- the total return at maturity is a function of the collective price appreciation of the commodities;
- the issuing financial institution will on a best-endeavours basis make a secondary market in the CLNs for investors;
Figure 2: LME Futures and Options Turnover

- the financial institution will mark-to-market the CLNs daily, weekly or at periods requested by the investor; and
- the basket may be passively or dynamically managed.

MAJOR MARKET PARTICIPANTS

Industry or commercial-sector risk management

This category comprises principally the producers and consumers of physical commodities. Most of their activities in the forward markets are for the strategic hedging of their physical exposures.

Data from the US futures-market regulator, the Commodities Futures Trading Commission (CFTC), shows that the industry sector accounts for 70 per cent of the Nymex open position in WTI crude. A similar analysis is not readily available in the metals sector but industry has capitalised on the increased liquidity of the LME metal markets to take more active positions, particularly in the copper and aluminium contracts.

Notwithstanding the above dominance by the industry sector, some investors continue to debate the merits of hedging by the companies in which they invest. By implication these investors demand strict cost control on the production and administration side but prefer the corporate to speculate on the spot markets for the revenue side.

Real shareholder wealth does not come from periodic price hikes which are hard for corporates to capture efficiently. Rather, wealth comes from the prudent investment of cashflows. Hedging a portion of revenue receipts is simply one means of underwriting the cashflows. Strategic hedging by the industry sector is likely to increase.

Non-industry players

Commodity trading advisers (CTAs): These are active in most futures markets and cover a wide range of commodities including bonds and foreign exchange. They tend to be most active where they can effectively use their large volume of trade data and are essentially trend-seeking.

CTAs restrict their activities to highly liquid nearby contracts. Although there are exceptions, most have very short-term trading horizons (days/months) and characteristically minimise margin outlays through stop-loss positions immediately above or below the market. The importance of minimising margin calls reflects, in part, the high leverage of the investments.

Hedge funds: The US hedge funds currently maintain an unregulated status under the Securities and Exchange Commission rules. This status is gained, inter alia, in return for restricting the number of clients in each fund and not publicly holding themselves out as advisers. Investors in such funds demand anonymity and investment flexibility in return for the commissions they pay.

Although disclosure details are minimal, market intelligence has it that the funds collectively manage in the order of $US100 billion. Since the hedge funds typically leverage the capital available, the face value can be many times this amount.

The need to redeem positions means that the hedge funds are constantly trading and rolling over their contracts to recognise their gains and losses.

Mutual funds: Unlike the hedge funds, the US mutual funds and their advisers are closely regulated by the SEC and disclose accordingly. The mutual funds apparently take long positions in the commodity markets, preferably through structured investments. They were major investors in base metals in 1994, choosing metal basket warrants and commodity-linked notes rather than active LME positions. The mutual funds could well adopt commodities as an asset class.

GLOBAL FUNDS AND VOLATILITY

Increased activity by specialist funds has highlighted their possible influence on price behaviour and volatility.

In the commodity markets, as in the financial markets, fundamentals can be expected to prevail. Technology is now available to analyse commodity supply-demand patterns and is enhancing the capacity of the markets to anticipate trends. The weight of capital behind these funds is such that they can antici-
pate trends earlier and may exaggerate price movements.

Energy sector observations
In its reports on the Nymex open position in WTI crude, the US Commodities Futures Trading Commission breaks down trading into three categories:
- commercial (70 per cent of the market), representing crude oil producers, refiners and consumers;
- non-commercial (5 per cent) – entities, including hedge funds and investment institutions, holding more than 300 futures contracts without having a hedge position and
- small traders (25 per cent) holding fewer than 300 contracts.

Metals sector observations
An interesting observation by Dr Alan Heap, senior commodity analyst, CNW Securities, relates to the changing relationship between base metal prices and the stock:consumption ratio. This is the bottom line from a supply/demand balance. The relationship between stock:weeks and prices is different in this cycle from the early eighties cycle. In the 1980s, stock:weeks fell progressively but so did prices, until 1987 when stock:weeks fell to a minimum and prices took off. There was a large element of surprise in the market.

In this cycle commodity price recovery was crystallised at an earlier stage of the inventory rundown. This anticipation, rather than absolute price influence, is considered to be largely due to the role of the non-industry players.

Another fundamental effect on pricing is the structure and ownership of the LME stockpiles. During the 1980s most stocks were held by producers. In the current cycle more than half of the stocks are held on the LME. This has greatly enhanced transparency and reduced the elements of surprise.

CONCLUSION
- Superannuation funds holding increasingly long positions in resource equities will become more exposed to mismatches between sharemarket and commodity price cycles. The market in resource equities efficiently anticipates future growth in commodity prices but can be negatively affected by market and company-specific event risk during times of commodity price strengthening. This value loss is avoidable.
- A distinction is made between accessing the underlying assets to diversify a resource portfolio and investing in commodities as a separate asset class. These are considered to be mutually exclusive.
- The listing of commodity-linked instruments on the Australian Stock Exchange would result in their being marked to the market value of the instrument rather than the market value of underlying commodity contracts. Consequently, financial institutions have tended to avoid the listing of such instruments. This perceived lack of liquidity remains a concern to most fund managers.

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