

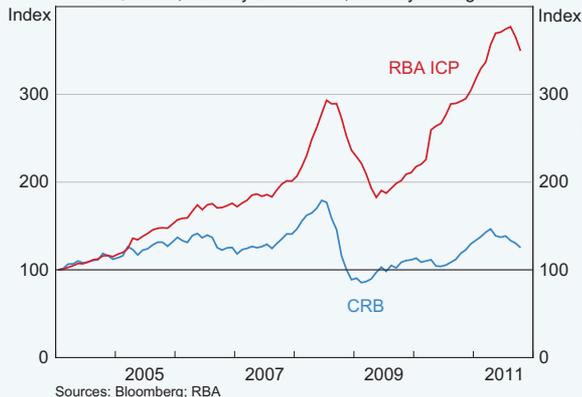
Box A

A Comparison of Commodity Indices

Some frequently reported commodity indices have diverged significantly over recent years (Graph A1). For example, the Reserve Bank's Index of Commodity Prices (RBA ICP) has increased strongly in recent years, in line with large rises in most individual commodity prices of relevance to Australia, whereas the Thomson Reuters/Jefferies CRB Index (CRB) is still around the same levels as it was in 2005. The divergent trends in these two indices reflect differences between price indices (primarily due to different weighting schemes) as well as differences between price and investor return indices.

Graph A1
Commodity Indices

US\$ terms, January 2004 = 100, monthly averages



Differences between Price Indices

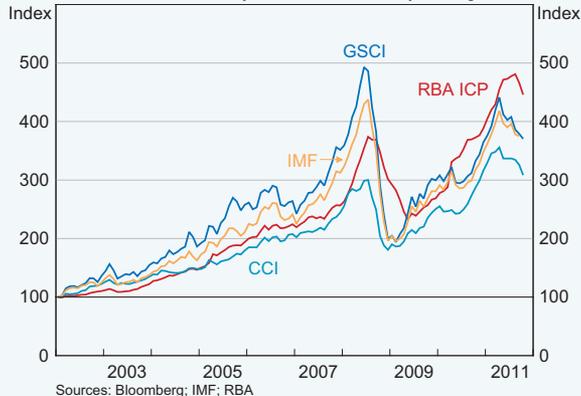
One group of commodity indices are price indices, which measure changes in the market value of a basket of individual commodities due to changes in the constituent prices. These price indices can diverge from each other if either the weights on individual commodities or the underlying price

measures for the individual commodities differ, or through some combination of the two.¹

Differences in the weights are a key source of divergence. For example, the S&P GSCI (GSCI) has around a two-thirds weight on energy commodities, while the Thomson Reuters Continuous Commodity Index (CCI) places equal weights on 17 different commodities (Graph A2). Indices with higher weights on energy commodities are designed to reflect the economic importance of this particular sector. Indices with more diversified weights are instead designed to capture broad-based trends in commodity prices. Other weighting schemes include trade weights, which are used in the IMF's All Primary Commodities Index (IMF).

Graph A2
Commodity Price Indices

US\$ terms, January 2002 = 100, monthly averages



¹ There are also other generally less significant methodological differences among price indices, such as the frequency with which weights are updated.

While many commodity price indices use weights based on global factors, country-specific indices can also be constructed using weights that reflect the composition of a particular country's exports, such as the RBA ICP for Australia. The RBA ICP places relatively high weights on coal and iron ore reflecting their high share in Australia's exports.²

Market-based commodity price indices, such as the GSCI and CCI, are typically based on futures prices as these are often more relevant to financial investors. Indices based on futures prices are also usually produced on an 'investor return' basis (discussed below). In contrast to market-based indices, commodity price indices constructed by public institutions, such as the IMF index and the RBA ICP, also include spot prices and (in some cases) contract prices, as these can be more relevant for the real economy. The RBA ICP is intended to gauge developments in prices that are relevant for Australian exporters, which for some commodities have historically been substantially determined by contract prices. Contract and some spot prices, however, sometimes lag movements in futures prices and this can result in the RBA ICP lagging other measures of commodity prices.

Differences between Price and Investor Return Indices

A second group of commodity indices measure investor returns. Typically, financial investment in commodities occurs through futures markets as this incurs no storage costs and only small funding costs. However, the effective return on these investments needs to take account of the return (or loss) that is made in moving from one futures contract to another, known as the 'roll return'. This roll return (or loss) arises because a futures contract

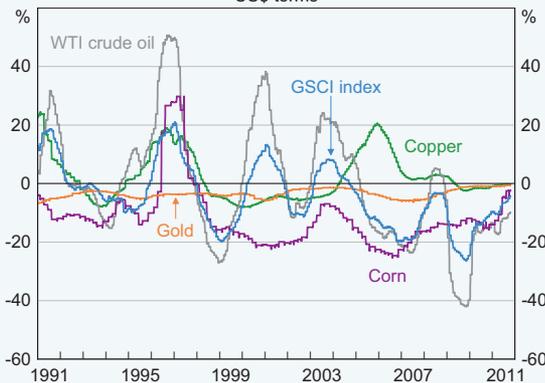
approaching expiry needs to be rolled over if the investor is to maintain exposure without accepting physical delivery of the commodity. This is done by simultaneously closing out an existing position in a futures contract that is approaching maturity and entering into a new position in a contract with a longer term to maturity. The difference in the values of the two contracts creates roll return, which in turn contributes to (or in the case of a loss, subtracts from) the size of the investment. When the next futures contract price is above the spot price (to which the price of the current futures contract must converge) – a situation known as 'contango' – the roll return will be negative, whereas when the futures price is below the spot price – a situation known as 'backwardation' – the investor receives a positive roll return. Investor return indices that capture both movements in futures prices and roll returns are referred to as 'excess return' indices.

Until the mid 2000s, roll returns did not on average have a large effect on overall investor returns, although they were at times significant, particularly for some commodities, such as oil (Graph A3). However, since the mid 2000s, aggregate roll returns have been negative and have accounted for much of the divergence between price and excess return indices. This is part of the reason for the divergence between the RBA ICP (a price index) and the CRB (an excess return index) in Graph A1, alongside differences in the composition of the underlying commodity baskets.

The effect of negative roll returns is also evident from the GSCI, for which both (futures) price and excess return measures for the same underlying basket of commodities are published (Graph A4). Over the past 20 years, roll returns on the GSCI have on average been negative, which has offset cumulative price increases of around 200 per cent and resulted in a net excess return over this period of close to zero.

² For more details on the RBA ICP, see Noone C and A Park (2009), 'Updating the RBA's Index of Commodity Prices', *RBA Bulletin*, October, pp 13–17 and 'Modifications to the Reserve Bank of Australia's Commodity Price Index', *RBA Bulletin*, September 1998, pp 1–4.

Graph A3
Selected Annual Roll Returns*
 US\$ terms



* The selected commodities are those with the highest weights in the energy, industrial metals, precious metals and agriculture sectors in the GSCI
 Sources: Bloomberg; RBA

Graph A4
GSCI
 US\$ terms, 1 January 1991 = 100



* Officially called a 'spot' index
 ** Officially called an 'excess return' index
 Source: Bloomberg

Although the investor return as measured by the GSCI and other broad-based excess return indices over a long period has been low, it is important to note that: only a small portion of a futures contract's value needs to be deposited as a margin, meaning that the funding cost of such an exposure is fairly small;³ an investment in commodities through futures contracts avoids the storage costs of holding physical commodities, which in many cases can be significant; and other strategies for financial investment in commodities have been introduced to minimise negative roll returns. Such strategies include: investing further out along the futures curve; actively choosing to roll into the futures contract that provides the highest roll return; or placing lower weights on commodities in contango and higher weights on those in backwardation. ❖

3 Because investments in futures markets do not need to be fully funded, this creates what is known as 'collateral return' for financial investors. In addition to price and roll returns, so-called 'total return' indices also include this collateral return. It should be noted that neither excess return nor total return measures capture the potential broader benefits of investing in commodities, such as those related to portfolio diversification.