

## Critical materials outperform base metals

*Tracking price trends for the EU critical raw material list*      *June 2014*

At the end of May 2014, the European Commission officially announced the new list of raw materials it considers critical. 54 materials were included in the initial analysis, and the new list is shown below. The updated list includes 20 raw materials that are critical to the EU economy, and includes industrial minerals, technology metals and metal alloy agents. Oakdene Hollins led the study, which provided the supporting analysis to the new EU critical raw materials list.

Antimony	Beryllium	Borates	Chromium	Cobalt	Coking Coal	Fluorspar
Gallium	Germanium	Indium	Magnesite	Magnesium	Natural Graphite	Niobium
Platinum Group Metals	Phosphate Rock	Rare Earths (Heavy)	Rare Earths (Light)	Silicon Metal	Tungsten	

*Blue=CRM Industrial Minerals, Red=CRM Technology Metals, Green=CRM Metal Alloy Agents*

### Implications to business

One common misconception is to confuse the idea of supply risk with the expectation that it will mean a shortage of material. This is unlikely except in the most extreme examples. It is much more likely that the impact supply risks will be passed onto end-users of the critical raw materials through sudden cost increases or greater price volatility.

This was certainly the case for rare earths, a group of technology metals, whose prices skyrocketed many times over during 2010-2011. This followed China's decision to severely limit export quotas of rare earths to the rest of the world. For heavy rare earths, in particular, prices rose eight-fold during 2010-11, with light rare earths increasing three-fold in the same period.

Supply risks for end-user businesses can be mitigated by risk management approaches including: holding inventories, minimising use and substitution with another material. Supply risks can also present opportunities to miners, refiners and recyclers who may be able to take advantage of high prices by increasing their production or recycling greater quantities of materials. However, all of these approaches can take some time to be realised.

### Introducing a basket price index for CRMs

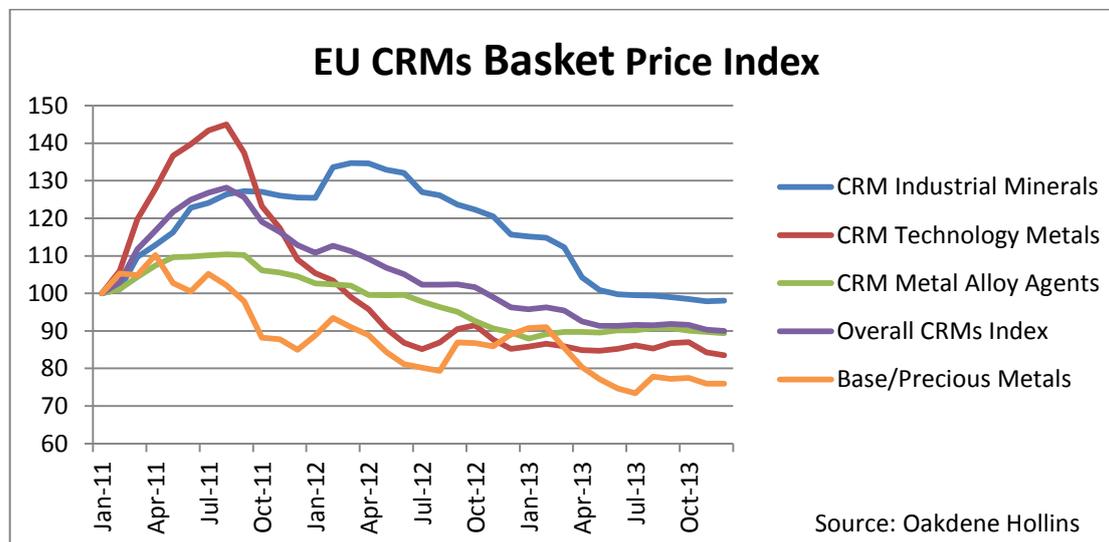
To test these implications, Oakdene Hollins has conducted extensive analysis of the price trends for critical raw materials (CRMs). We chose a start date at the beginning of 2011, (shortly after the previous EU critical materials list was adopted and during the period for the current analysis). This gives 3 years of price data to analyse, which is enough to see some trends start to emerge.

Each critical raw material has been given equal weight in the overall CRMs index, and in the constituent indices for CRM Industrial Minerals, CRM Technology Metals and CRM Metal Alloy Agents. One exception to this is that rare earths have not been counted twice through their light and heavy component, but rather weighted by annual production by element (a similar approach to that used for platinum group metals).

Price data has been sourced from Metal Bulletin and Industrial Minerals for a representative grade, with other sources used where these were not available. A base and precious metals index has been computed as a comparison, although none of these metals are listed as CRMs.

### Price trends for CRMs

Our analysis of recent price trends for critical materials provides some interesting conclusions. Prices for critical raw materials, particularly rare earths, spiked during 2011, as a result of the re-emergence of the commodity boom and further concerns about resource nationalism. Prices for most CRMs have now fallen below 2011 levels, by around 10% on average. However, CRMs prices still continue to outperform exchange traded base and precious metals, by some margin.



Greater price volatility can be identified in the price trends of critical raw materials during the period. The winners and losers board is shown below, which shows large positive price swings for germanium and phosphate rock, and large price falls for rare earths, gallium, natural graphite, cobalt and coking coal. Interestingly many of the larger price falls are in faster growing markets, suggesting that the build-up of supply capacity has exceeded the realised increases in demand.

CRM Price Winners	% Change, 2011-14	CRM Price Losers	% Change, 2011-14
Germanium	+50%	Rare earths	-70%
Phosphate Rock	+40%	Gallium	-55%
Indium	+20%	Natural Graphite	-40%
Fluorspar	+20%	Cobalt	-40%
Tungsten	+10%	Coking Coal	-35%

The CRMs basket price index will be next updated at the end of 2014. We'd welcome your comments and feedback on CRMs basket price index:

- Will critical materials continue to outperform base metals during 2014?
- Is such risk weighting helpful in analysing investment opportunities?
- What are the influences of related factors such as by-product status?

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#### About Oakdene Hollins:

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