The Cobalt market is at a turning point

Oversupply of by-product cobalt units has been putting negative pressure on prices for more than three years but the market may now be turning a corner. There is an improvement in market sentiment across the board: cobalt prices have been trending up since the beginning of the year; the nickel price rally has favoured nickel-cobalt producers; demand from rechargeable batteries used in consumer electronics continues to be robust; the prospect of a booming Electric Vehicle market generates further upside demand potential.

CRU’s Cobalt Market Outlook, published July 2014, offers an unparallel review of the cobalt market and investigates how it is expected to develop in the future. Our bottom-up analysis covers 100% of cobalt’s complex supply chain, from the mine stage where by-product units are produced, to a uniquely detailed picture of the demand side, based on real consumption analysis. CRU clarifies how the numerous supply chains operate and explains dynamics in various segments of the global market. Our base-case view is supported by upside and downside risk scenarios.
### Upside price risks mostly generated by market fundamentals

| Stronger than anticipated economic outlook | Electric vehicles register strong growth |
| Favourable end-use technology developments | Power supply constraints in the DRC |
| Technical challenges at HPAL operations | DRC ban on unprocessed cobalt exports |
| China’s State Reserve Bureau purchases metal |

### Downside risks a combination of fundamentals & environment

| Chinese economy crashes | Oil prices surge |
| Russia/Ukraine tensions escalate | Weaker than anticipated industrial production |
| Substitution of cobalt or lower intensity of use | Production growth stronger than CRU’s expectations |
| Development of new projects | Nickel price rally accelerates |

### Structural changes affect cobalt production

Recently commissioned copper and nickel projects that are ramping up contribute to cobalt mine production growth. It is not only the volume growth, however, that affects the market. Cobalt production is also being impacted by integration, changes of ownership, and importantly, changes in the type and volume of units available to third-party processors.

Our production analysis covers all forms of cobalt units: cobalt concentrates, copper-cobalt concentrates, nickel-cobalt concentrates, nickel-cobalt intermediates, cobalt hydroxide, cobalt...
carbonate, alliage blanc, and cobalt metal. A strong area of our research is the fact we have detailed estimates for mixed (i.e. with other metals) units that are not easily identifiable.

CRU's analysis has incorporated the above developments with a view to identifying the major trends that are reshaping the cobalt industry. For instance we have focused on the expected availability of cobalt units to third-party processors by product type. CRU is of the view that in an environment of tough negotiations over terms of supply contracts, understanding these developments is increasingly vital.

A major concept we continued to develop this year was to distinguish between the metallurgical and non-metallurgical refined market balances. In the last two years there has been a growing asymmetry between the market for refined metal and that for cobalt raw materials. Whilst the market for concentrates and intermediate products is tightening, a combination of expanding metal producing operations and weaker-than-expected demand leads to a well-supplied metallurgical market. CRU projects that this trend will remain in place in the next five years.

Demand is subject to significant risks

Cobalt consumption growth has outperformed that of several other metals due to unprecedented demand from the chemical sector. In recent years, demand from this sector has benefited from ample availability of material and low prices. Consumption from metallurgical sectors, however, has risen at more modest rates. With high-tech applications that use cobalt being subject to unforeseeable technological development, the question is whether the chemical sector will continue to grow at rates seen in the recent past.

Our demand projections are based on the assumption that end uses will continue to favour the consumption of cobalt. An upside risk factor we have examined this year is the additional cobalt that could be consumed if the ambitious plans of Tesla Motors materialise. At the moment this additional demand has not been part of our base-case demand scenario due to the uncertainty around this anticipated development. Cobalt consumption needs of the ‘Tesla factor’ alone could require the output of an entire cobalt refinery by the end of the decade.

What is the role of China?

China accounts for nearly half of global refined cobalt production and relies on imports of raw materials. It is not a surprise that changes in imports and stocks of accumulated feed have a tremendous impact upon the global cobalt market. When assessing Chinese imports of cobalt raw materials we distinguish between cobalt products and cobalt units contained in mixed products.
While cobalt product imports are reported in official trade statistics, imports of mixed units can only be identified by looking at mine production and making certain assumptions regarding destination.

The refining sector in China is an opaque segment of the market. This part of our analysis is conducted by specialists based in CRU’s Beijing office. Our assessment, which offers a complete picture of the refining sector, shows that on several occasions irrational economic decisions lead to overproduction. Looking ahead, we have taken a conservative approach when forecasting Chinese refined production as we believe that domestic processors will continue to be under pressure due to high operating costs and shortage of cobalt units.

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