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Methodology For Standard & Poor's Metals And Mining Price Assumptions

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PRIMARY CREDIT ANALYST

Diego H Ocampo
Buenos Aires
(54) 114-891-2116
diego.ocampo@spglobal.com

SECONDARY CONTACTS

Jarrett Bilous
Toronto
(1) 416-507-2593
jarrett.bilous@spglobal.com

May Zhong
Melbourne
(61) 3-9631-2164
may.zhong@spglobal.com

Tommy J Trask
Dubai
(971) 4-372-7151
tommy.trask@spglobal.com

CRITERIA OFFICERS

Sarah E Wyeth
New York
(1) 212-438-5658
sarah.wyeth@spglobal.com

Peter Kernan
London
(44) 20-7176-3618
peter.kernan@spglobal.com

*(**Editor's Note:** This article is no longer current. Please see "FAQ: How S&P Global Ratings Formulates, Uses, And Reviews Commodity Price Assumptions," published Sept. 28, 2018.)*

1. This article presents Standard & Poor's Ratings Services methodology for determining its base case metals price assumptions, and aims to clarify Standard & Poor's development and use of price assumptions for companies operating in the metals and mining industry. This article is related to our corporate criteria (see "Corporate Methodology," published Nov. 19, 2013) and to our criteria article "Principles Of Credit Ratings," published on Feb. 16, 2011. Our price assumptions are typically reviewed quarterly and adjusted as Standard & Poor's perception of industry developments warrants (for example, when a significant change in price occurs).

SCOPE OF THE CRITERIA

2. The criteria pertain to companies operating in the relevant metals and mining industries, which include gold, copper, aluminum, nickel, zinc, and iron ore.

SUMMARY OF THE CRITERIA

3. This methodology outlines how Standard & Poor's develops price assumptions for various metals, and how they are used in corporate credit analysis. In particular, we publish price assumptions for gold, copper, aluminum, nickel, zinc, and iron ore, which are the metals that have the most bearing on our universe of ratings, and we aim to apply this same methodology to less prevalent metals, to the extent possible. Considering the application of price assumptions in our financial forecasts, we establish price assumptions for the remainder of the current year and two years thereafter.

4. Such price assumptions are used to develop the expected case for an issuer's financial forecast under a realistic price scenario and for comparing key credit attributes for companies operating in commodity metals industries. In determining its metals price assumptions, Standard & Poor's references prices quoted on the London Metal Exchange for base metals and recognized industry benchmarks for bulk commodities.

5. The assumptions are used to forecast operating performance for metals and mining companies and for consumers of metals, including steel companies, downstream rolled products makers, and other manufacturers.

6.

From these benchmark prices, we may establish price assumptions for other metals on a company-specific basis. For example, our assumption for iron ore prices may inform our expectations for steel prices, which does not have a liquid forward market to provide a basis for our assumptions and has a wide range of regional and product-specific variances.

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METHODOLOGY

9. We use available metals forward curves as a starting point for our price assumptions. Although these curves are not necessarily accurate predictors of future spot prices, they reflect a market consensus at any time. The curve for each metal, however, is subject to its own volatility, owing significantly to the breadth and liquidity of a particular metal's physical trading. As such, we expect that forward curves for the most-consumed metals like aluminum and copper will continue to be less volatile than those for more thinly traded commodities like nickel and zinc.

10. We establish price assumptions for the remainder of the current year and two subsequent years, derived primarily from each metal's forward curve. We may adjust the prices inferred by forward curves to some extent, based on our view of the most likely base case, incorporating the following market fundamentals:

- Supply/demand: Our assumptions incorporate our best estimates of output and inventories for key metals, underpinned by Standard & Poor's economic forecasts for our demand expectations. This will ultimately determine our assessment of whether we expect low-, mid-, or peak-cycle conditions, and related returns to prevail.
- Production costs: When oversupply occurs, we expect prices to converge towards break-even cash costs (cash operating expense and minimum maintenance spending) for the marginal producers. As such, we believe that potential supply curtailments from marginal producers are key to understanding price support during periods of weaker demand.
- Other factors: We also incorporate companies' pricing assumptions for strategic planning and capital spending, as well as our expectations of sustainable margins and returns. For example, cost pressures from declining grades and consumables inflation would push our price assumptions higher, while significant prospective low-cost capacity could depress price assumptions.

11. For metals, we generally will not publish long term pricing assumptions (year three and beyond), as these extend beyond our typical projection period (see "Corporate Methodology," section E, "Time horizon and ratio calculation"), and bearing in mind the limited visibility and above-average volatility of the mining sector. That said, we believe that longer term prices could likely deviate more substantially from the forward curve toward a sustainable price level based on fundamental analysis, reflecting most likely all-in cost of producers, calculated as cash operating expenses as well as maintenance and development capital spending.

REVIEW CYCLE

12. We review our metals price assumptions at least quarterly, focusing on industry developments to support the basis for potential adjustments. That said, we recognize that forward price indications are volatile, just like spot prices, such that we would consider adjusting our price assumptions if forward price indications deviate sustainably by 20% from our assumptions for an extended

period.

USING PRICE ASSUMPTIONS

13. Common price assumptions provide a comparable basis of evaluating the creditworthiness of metals and mining companies. We use these inputs to project a company's revenue, EBITDA, earnings, and cash flow under our base case scenario. Where appropriate, the analysis includes a company's hedging program as well as realized prices, which can differ from the London Metal Exchange prices owing to quality, or in some cases owing to geographic or regional supply and demand issues. These prices also support our assessment of an issuer's competitive position, providing a basis for evaluating relative profitability.

FREQUENTLY ASKED QUESTIONS

Do Standard & Poor's metals and mining price assumptions apply to every metals and mining company?

14. The methodology for Standard & Poor's metals and mining price assumptions typically applies to upstream producers that sell commodities such as gold, copper, aluminum, nickel, zinc, and iron ore at or near market benchmark prices. The criteria can also be used to forecast operating performance for downstream consumers of these commodities when they are purchased at or near market benchmark prices and when they comprise a meaningful component of input costs. It is not typically applied to upstream producers that sell these commodities under contract or other arrangement where the selling prices are not directly linked to market benchmark prices. A metal stream agreement, under which the customer receives the right to buy precious metals at a fixed price in the future in exchange for an upfront payment, is an example of a case where the price assumption methodology is not intended to apply as the agreement does not expose the customer to market price risk. It is also not typically intended to apply to downstream companies that use alternatives to these commodities (recycled steel instead of iron ore, for example), downstream companies that purchase these commodities under contracts that are not directly linked to market benchmark prices, processors or distributors when the cost is passed through to customers, and in certain other instances. Our corporate methodology would apply in these cases.

REVISIONS AND UPDATES

This article was originally published on Nov. 19, 2013. These criteria became effective on Nov. 19, 2013, the date of publication.

Changes introduced after original publication:

- On Feb. 12, 2016, we republished this article to include a "Frequently Asked Questions" section.
- Following our periodic review completed on Nov. 4, 2016, we updated criteria references, updated the contact list, and deleted sections that appeared in paragraphs 7 and 8, which were related to the initial publication of our criteria and no longer relevant.
- Following our periodic review completed on Oct. 25, 2017, we recast "Appendix 1: Summary Of Historic Changes To The Article" and "Effective Date And Transition" as this "Revisions And Updates" section.

RELATED CRITERIA AND RESEARCH

Related Criteria

- Key Credit Factors For The Metals And Mining Downstream Industry, Dec. 20, 2013
- Key Credit Factors For The Metals And Mining Upstream Industry, Dec. 20, 2013
- Corporate Methodology, Nov. 19, 2013
- Principles Of Credit Ratings, Feb. 16, 2011

These criteria represent the specific application of fundamental principles that define credit risk and ratings opinions. Their use is determined by issuer- or issue-specific attributes as well as Standard & Poor's Ratings Services' assessment of the credit and, if applicable, structural risks for a given issuer or issue rating. Methodology and assumptions may change from time to time as a result of market and economic conditions, issuer- or issue-specific factors, or new empirical evidence that would affect our credit judgment.