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Global Base Metals Industry

Slow Global Recovery Will Keep Base Metals Prices Range Bound

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Our outlook for the Global Base Metals industry is stable. This outlook reflects our expectations for the fundamental business conditions in the industry over the next 12 to 18 months.

» **Average prices for aluminum, copper, nickel and zinc will remain range-bound in 2014 near their 2013 levels, but will continue to show volatility.** Continued slow global economic growth rates, surplus inventory positions, and investors' subdued interest in the metals commodity sector will prevent any material upward movement in prices. We believe the price decline we saw through most of 2013 has bottomed, but prices in 2014 will still average lower than 2013 levels. We anticipate that prices for copper will average at most $3.00/pound (lb.), and for aluminum, $0.80/lb.

» **Demand for metals will recover unevenly worldwide. We expect to see demand for base metals slowly improve in the US and Latin America, while remaining sluggish in Europe, and Asia will grow by mid-single-digit rates.** We expect that China will continue to follow a more moderate growth trajectory, along the same lines as it had in 2013.

» **Base metals producers will focus on cost savings and capital discipline in 2014. Operating cost increases will be more moderate while cost savings initiatives will mitigate some of the pain of lower prices.** Fuel, energy, and labor costs will continue to raise costs for the industry, but not as much as in recent years. Base metals producers will scrutinize investment projects more closely.

» **We could change our outlook for the Global Base Metals Industry to negative if purchasing managers indexes (PMIs) in Europe, China and the US, the key consuming regions, track below 50 for at least two consecutive months, and if the International Monetary Fund (IMF) forecasts global GDP growth of less than 3%.** A positive outlook would require PMIs in the US, Europe and China exceeding 55 for at least three consecutive months, and an IMF forecast for at least 4% global GDP growth.

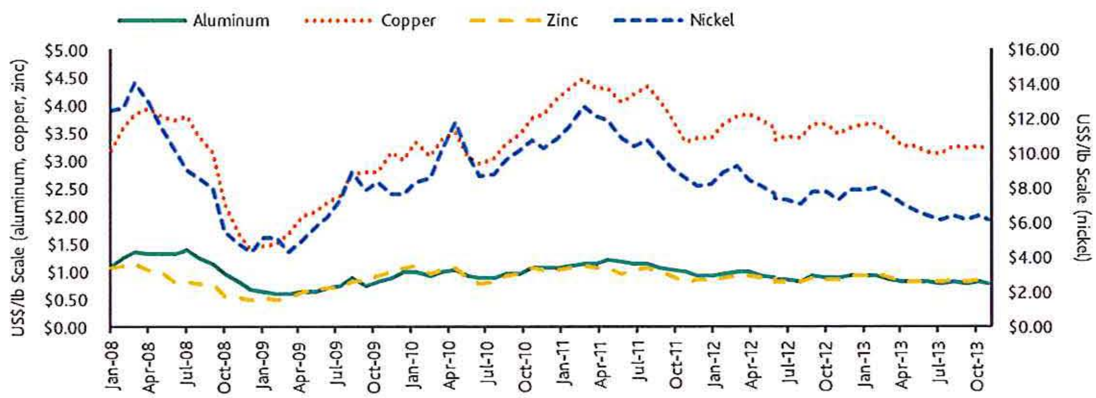
A negative industry outlook indicates our view that fundamental business conditions will worsen. A positive outlook indicates that we expect fundamental business conditions to improve. A stable industry outlook indicates that conditions are not expected to change significantly. Since industry outlooks represent our forward-looking view on conditions that factor into ratings, a negative (positive) outlook indicates that negative (positive) rating actions are more likely on average.

No Lift Likely for Base Metals Prices in 2014

We expect average prices for the base metals covered in this outlook—aluminum, copper, nickel and zinc—to remain range-bound in 2014, at the same levels as in the second half of 2013. But prices will show volatility.

Base metals prices marched steadily downward in 2013 through the end of November (see Exhibit 1, below). Average aluminum prices fell 14%, copper 12%, zinc 8% and nickel 21%. Since September, prices remained relatively range bound, and we expect this pattern to continue in 2014. In addition to global macro-economic factors that will influence price performance, all metals are in surplus, with production levels exceeding demand, and interest from the investment community is subdued. These factors are unlikely to change in the near term. We believe prices in 2014 will average below 2013 levels, with copper prices averaging at most $3.00/pound (lb.), and aluminum prices, $0.80/lb.

EXHIBIT 1
Base Metals Historical Price Trends
January 2008 to November 2013



Source: London Metal Exchange

Price Sensitivity for Base Metals

	2013 Base	2013 Downside	2014 Base	2014 Downside
Copper/lb.	$3.20	$2.80	$3.00	$2.75
Aluminum/lb.	$0.80	$0.75	$0.80	$0.75
Nickel/lb.	$6.75	$6.50	$6.25	$5.75
Zinc/lb.	$0.80	$0.70	$0.80	$0.70

Note: Price sensitivities represent baseline approximations—not forecasts—that we use to help us evaluate risk within the base metals industry. We periodically revise our base metal price sensitivities to better calculate future financial metrics for companies in the industry.

Source: Moody's Investors Service

Our stable outlook for the sector does not imply that conditions will improve meaningfully in 2014; rather, we see that conditions are unlikely to deteriorate further over the 12-18 month period of our outlook through early-to-mid-2015.

Numerous industrial applications use copper, aluminum, nickel and zinc, although each metal has certain concentrations and is sensitive to certain end markets. Copper and aluminum are the most broadly used, with deeper markets and broader application. About 30% of copper is used in the equipment markets and another 30% in the building construction markets, with roughly 12% for the industrial markets, 13% for transportation and 15% for infrastructure.[1] Nickel and zinc correlate more closely to the fortunes of the steel industry, for stainless steel (which uses approximately 64% of nickel production) and galvanizing steel (roughly 55% of zinc).

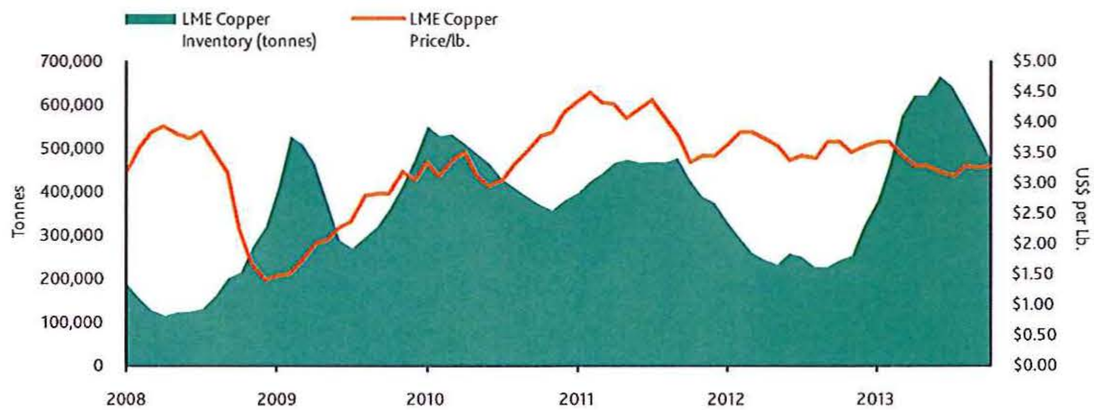
Copper prices have steadily retreated since 2011, when they reached an average of around $4.00/lb. For the full-year 2013, copper prices should average around $3.30/lb, reflecting the fact that the global economic recovery not only failed to maintain traction since 2011, but slowed. Fewer production disruptions and strikes in 2013, together with a ramp-up in new production, have contributed to a copper surplus that will likely continue in 2014. The International Copper Study Group projects a refined copper surplus of about 390,000 tonnes[2] in 2013 and an even higher level in 2014[3] as additional new production comes on line. However, the delay of various projects, as companies take a more stringent approach to capital allocation, could reduce the imbalance.

While the London Metal Exchange's copper inventories moved steadily higher to 662,275 tonnes at the end of June 2013, they have fallen since then to roughly 405,000 tonnes as of December 9, 2013 (see Exhibit 2, below). Diverging views have emerged on whether copper will remain in a surplus position, given Chinese restocking and copper moving into off-exchange warehouses. This latter shift would make tracking inventory levels problematic.

EXHIBIT 2

LME Copper Inventory vs. Price/lb.

January 2008-October 2013



Source: London Metal Exchange

Despite the copper price drop, low production costs will allow a number of major producers, including BHP Billiton (A1 stable), CODELCO (A1 negative), Southern Copper (Baa2 stable) and Freeport-McMoRan Copper & Gold (Baa3 stable) to remain profitable in 2014, although all of these companies will experience earnings degradation.

1 International Copper Study Group's World Copper Factbook 2013.

2 Or metric tons, equivalent to 1,000 kilograms each—slightly more than a short ton (2,000 pounds).

3 International Copper Study Group: Copper Market Forecast 2013-2014, October 2, 2013.

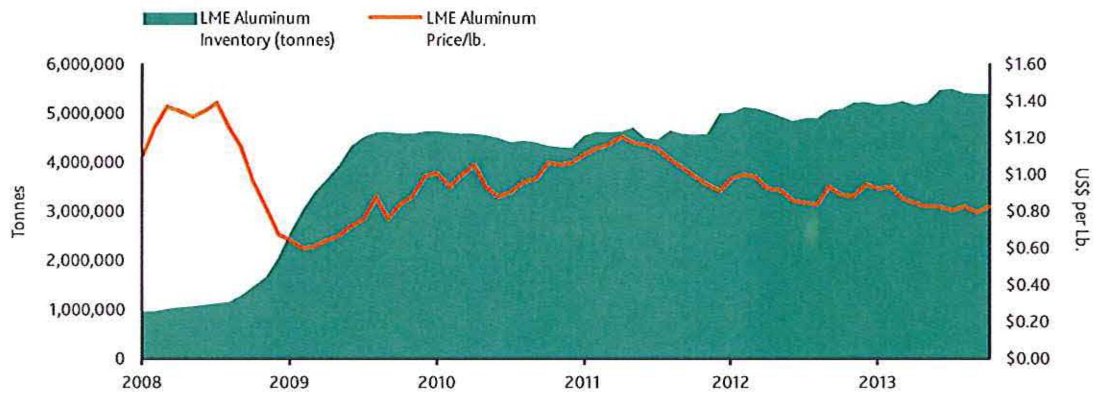
Despite the current supply imbalance, copper will remain well positioned over the medium to longer term, given its supply/demand characteristics, the need to replace depleting resources, and the longer and more costly times needed to bring on new production.

Aluminum fundamentals will remain weak, with prices under pressure and persistently high inventories (5.4 million tonnes as of December 9, 2013, versus roughly 5.2 million tonnes in early January 2013; see Exhibit 3, below). Based on LME average spot prices of $0.79/lb in November 2013—compared to $0.85/lb for the first nine months of 2013—a large number of aluminum smelters are likely producing at breakeven levels, at best, though some may see a boost from regional premiums.

EXHIBIT 3

LME Aluminum Inventory vs. Price/lb.

January 2008-October 2013



Source: London Metal Exchange

Given the dynamics of the aluminum market, we see no catalyst for a material price improvement through early-to-mid 2015. Various aluminum producers have taken increasingly aggressive steps to idle or shutter capacity: Alcoa (Ba1 stable) has idled 651 kilotonnes (kt) of capacity, and Norsk Hydro (Baa2 stable) idled 248 kt in 2012. Even so, new capacity coming on line will keep aluminum oversupplied in 2014, despite relatively decent demand from the automotive and aerospace industries (once this industry completes its destocking of excess inventory).

» The LME in November 2013 announced various warehouse reforms and new load out rules, effective April 1, 2014. Under the new rules, if a warehouse queue exceeds 50 days, further metal will need to be delivered out, on a formula basis, in order to maintain the appropriate queue days.[4]

» As more metal becomes available over time, we expect premiums will decline from the high levels of 2012 and 2013. However, we do not believe this rule change will result in an immediate, material release of metal onto the market and price collapse given the inventory levels, compared to the daily load out requirements, particularly for aluminum. The implications of the new LME rules are complex and will affect the various constituents differently.

Nickel prices eroded significantly in 2013, with zinc prices also showing evidence of a downward trend (see Exhibits 4 and 5, below). Both metals rely heavily on the steel industry, which will remain weak in

[4] See LME's FAQs – LME warehousing consultation, November 2013.

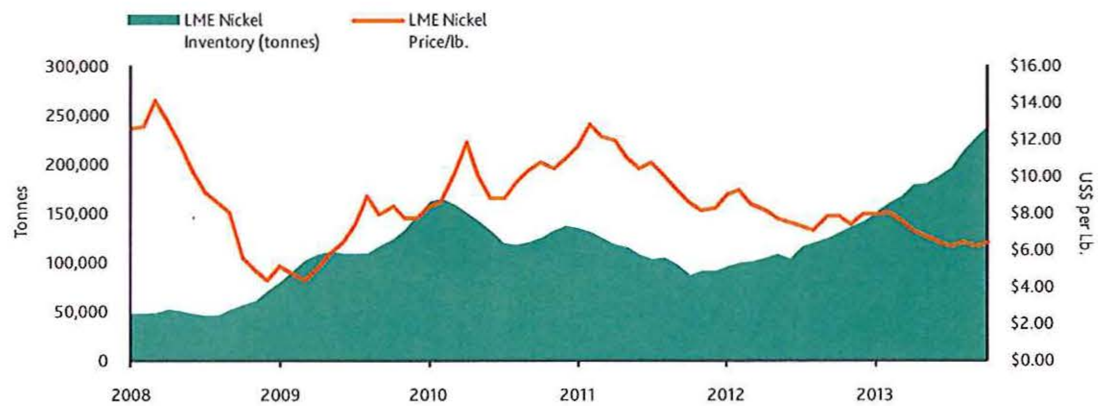
2014 worldwide. The worldwide nickel surplus has grown steadily through 2013, reaching roughly 253,000 tonnes as of December 9, 2013. Zinc inventories have also remained high, despite some drawdowns in late 2013. Over the next several years, however, some large zinc mines face depletion and closure, with no sign of significant new stock coming on line.

Indonesia's stated intention to ban unprocessed ore exports starting January 13, 2014 could give nickel prices a boost, and would affect other ore exports such as copper and bauxite. Indonesia is one of the top nickel-producing countries.

EXHIBIT 4

LME Nickel Inventory vs. Price/lb.

January 2008-October 2013

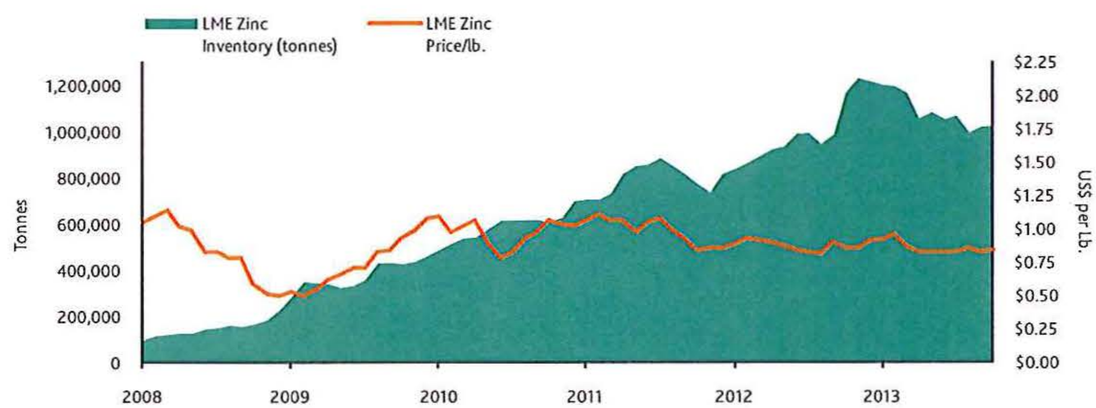


Source: London Metal Exchange

EXHIBIT 5

LME Zinc Inventory vs. Price/lb.

January 2008-October 2013



Source: London Metal Exchange

Demand for Base Metals to Improve Only Modestly

Demand growth for base metals will likely show only modest year-on year improvement in 2014, given the continued slow pace of global economic recovery as demand is driven by industrial production levels together with investing activities. The pace of global economic recovery remains slow. Weak economic statistics in the first half of 2013 and slower-than-expected growth in China—which consumes 40% or more of each of the four main base metals—contributed to a downward price slide that we believe has now bottomed, but we see little sign of a significant rise in demand.

Despite improving trends in purchasing managers indices (PMIs) in the US, Europe and China (see Exhibit 6, below), economic growth overall remains slow. Europe's economic recovery is still in its beginning stages, and China's GDP growth will continue at a more measured level than seen in prior years, although it will continue to outpace that of the OECD countries. The International Monetary Fund projects that the US will see GDP growth of 1.6% for the full year 2013, compared to -0.4% for the euro area and 7.6% for China. IMF forecasts GDP in 2014 to grow by 2.6% in the US, 1.0% in the euro area and 7.3% in China.[5] As a significant consumer of base metals, China's purchasing patterns play a key role in demand and price drivers, and in market sentiment.

EXHIBIT 6

PMI Trends In the US, Europe and China

Purchasing Managers Index

Note: Various PMIs up to November 30, 2013

Source: China Federation of Logistics and Purchasing (China data); Markit (Eurozone data); Institute for Supply Management (US data)

Companies Focus on Cost Reduction and Capital Discipline

Cost creep will continue in 2014, particularly for fuel, energy and labor, but at lower levels than in recent years. The significant drop in metal prices will lead to lower earnings and cash flow generation for base metals producers.

In the face of continued challenging conditions, many companies have initiated rigorous cost savings programs, as well as reductions in capital expenditures and exploration and development expenditures. Rio Tinto (A3 stable) is on track to meet its targeted savings of $2 billion for 2013, while Teck Resources (Baa2 stable) has implemented various cost savings programs, targeting $330 million in annual savings beginning in 2013. Norilsk Nickel (Baa2 stable) has announced a comprehensive new

[5] International Monetary Fund: World Economic Outlook, October 2013.

strategy to deliver higher returns, including targeted reductions in operating costs and improved working capital turnover. Alcoa exceeded its $750 million in savings targeted for 2013 by the end of the third quarter.

In addition to these cost-savings initiatives, the global base metals industry has focused on stricter management of capital investments and decisions about investments in particular projects after substantive spending in recent years. As a result, base metals companies in 2014 will reduce their capital expenditures and exploration and development expenses. This greater focus will improve cash flow generation for the industry.

Even so, for the latest 12-month reporting period, the rated base metals companies' aggregate revenues have declined by 3%, and EBIT is down by 7% (see appendix, next page. This list of companies excludes those with private financials, as well as Glencore International [Baa2 stable], due to its large trading revenue base.) We believe the degree of earnings decline will be even more apparent when companies report their fiscal 2013 results, and in 2014. Industry initiatives will help mitigate the full impact of the weak price environment, but a prolonged period of price weakness will pressure performance and ratings.

Appendix: Rated Issuers in the Global Base Metals Industry

Ratings and outlooks as of December 9, 2013

Rated Issuer	Senior Unsecured/Corporate Family Rating*	Commercial Paper/Speculative Grade Liquidity**	Outlook	EBIT Margin %	EBIT/Interest Expense	Debt/EBITDA
BHP Billiton Plc	A1	Prime-1	Stable	31.3%	13.51x	1.38x
Corporacion Nacional del Cobre de Chile	A1		Negative	38.0%	16.6x	1.6x
Rio Tinto Group	A3	Prime-2	Stable	24.7%	9.0x	2.1x
Minera Escondida Limitada	Baa1		Stable	48.3%	412.7x	0.2x
Alcoa of Australia	Baa2		Stable			
Anglo American plc	Baa2	Prime-2	Negative	15.1%	5.4x	2.6x
Industrias Penoles S.A.B. de C.V.	Baa2		Stable	19.1%	33.3x	0.5x
Norsk Hydro ASA	Baa2		Stable	1.4%	1.4x	4.4x
Vale S.A.	Baa2		Stable	37.9%	10.4x	1.5x
Vale Canada Ltd.	Baa2		Stable			
Southern Copper Corporation	Baa2		Stable	45.4%	11.7x	1.3x
Minera Mexico	Baa2		Stable			
Glencore International AG	Baa2		Stable	1.3%	1.6x	3.6x
Teck Resources Limited	Baa2		Stable	27.8%	6.5x	2.1x
OJSC MMC Norilsk Nickel	Baa2		Stable	33.3%	13.6x	1.5x
Freeport-McMoRan Copper & Gold Inc.	Baa3		Stable	26.0%	9.6x	3.1x
Volcan Compania Minera	Baa3		Stable	25.7%	11.1x	1.7x
Votorantim Participações S.A.	Baa3		Positive			
Alcoa Inc.	Ba1	SGL-1	Stable	7.0%	2.0x	4.1x
Vedanta Resources Plc	Ba1		Negative	21.1%	1.9x	3.3x
Kaiser Aluminum Corporation	Ba3	SGL-1	Stable	12.3%	3.7x	2.4x
PT Aneka Tambang (Persero) Tbk (Antam)	Ba3		Stable	10.4%	4.8x	3.6x
First Quantum Minerals	Ba3		RUR - Downgrade	28.0%	35.0x	2.5x
Novelis Inc.	B1	SGL-3	Stable	5.4%	1.6x	6.6x
Constellium Holdco B.V.	B1		Stable			
Aleris International Inc.	B1		Negative	2.7%	0.9x	6.4x
Noranda Aluminum Holding Corporation	B2	SGL-3	Negative	-0.4%	-0.1x	8.8x
Aluar Alumino Argentino S.A.I.C.	B2		Negative	10.9%	3.5x	1.3x
Hudbay Minerals, Inc.	B3	SGL-4	Negative	3.9%	2.2x	6.8x
Century Aluminum	B3		Negative	0.1%	0.0x	5.6x
KGHM International Ltd. (Quadra)	B3	SGL-3	Stable	18.4%	1.1x	6.0x
Taseko Mines Limited	B3	SGL-3	Stable	-4.8%	-0.8x	6.7x

Ratings and outlooks as of December 9, 2013

Rated Issuer	Senior Unsecured/Corporate Family Rating*	Commercial Paper/Speculative Grade Liquidity**	Outlook	EBIT Margin %	EBIT/Interest Expense	Debt/EBITDA
Consolidated Minerals Limited	B3		Stable	8.8%	1.6x	2.8x
Cobre del Mayo, S.A. de C.V.	B3		Stable			
Horsehead Holding Corp.	B3	SGL-3	Stable	0.5%	0.1x	10.8x
Wise Metals Group LLC	B3		Stable			
Thompson Creek Metals Company Inc.	Caa1	SGL-3	Stable	-2.0%	-0.2x	19.6x

* Senior unsecured rating listed for investment-grade companies, and corporate family rating listed for speculative-grade companies.

** Commercial paper rating listed for investment-grade companies, and speculative grade liquidity rating listed for speculative-grade companies.

Note: List excludes companies with private financials, as well as Glencore International (Baa2 stable), due to its large trading revenue base.

Source: Moody's Financial Metrics; includes Moody's standard accounting adjustments

Moody's Related Research

Industry Outlooks:

» 2014 Outlook - US Steel, US Coal, and Global Base Metals (Presentation), December 2013 (160571)

» 2014 Outlook - US Steel, US Coal and Global Base Metals: Downward Pressure Has Bottomed But No Significant Improvement in Sight (Summary), December 2013 (160973)

» 2014 Outlook – North American Non-Financial Corporates (Presentation), December 2013 (161033)

» Global Base Metals Industry Outlook Update: Prices to Stay Largely Range-Bound in 2014 as World Economy Faces Slow Recovery, November, 2013 (160300)

Special Comments:

» North American Base and Precious Metals Covenants Give Investors Strong Protection, June 2013 (155478)

Rating Methodology:

» Global Mining Industry, May 2009 (116843)

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