

The price of copper has been on a steady decline over the past six months and it is projected to continue on this downward trajectory. During the period from 8 May to 7 June (the period of the last eKuota Outlook), the price of LME cash copper fluctuated between a maximum of \$6.174 and a minimum of \$5.770 which is within the range predicted by eKuota. The eKuota average price estimate for was \$6.188 vs the actual monthly at \$6.012, which is very close but slightly lower than predictions. This decreasing in the copper price was mainly driven by the ongoing trade war between the U.S. and China, which has been causing a bear positioning within the market, leading to many short copper.

The recent news regarding the potential deal being made between the US and China at G20 Summit has led to increased optimism of the ending of the trade war, which would have a positive impact on the price of copper. This potential ending of the trade war has led to an overall increase in the world economy, and copper has also seen a sharp increase following the announcement. The US dollar index has weakened this month. During June so far, the dollar index has been hovering around the 96 and 97 range.

If this trade war continues, China will import less goods, therefore causing less of a demand for commodities, such as copper. This decline in demand would affect the price of such commodities. Additionally, global mining production fell 1,8% during the first two months of 2019, which has directly led to a macroeconomic slowdown. The pessimism surrounding the ongoing trade war has pushed copper into one of its steepest declines since June of 2018.

During the month of May, China's trade surplus saw a significant increase to \$41,66 billion USD. This trade surplus is drastically higher than predictions (\$13,77 billion USD). Imports have experienced the most drastic decline this past month then in the past three years. This extreme decline can be attributed to increasing tensions in the trade war between the US and China.

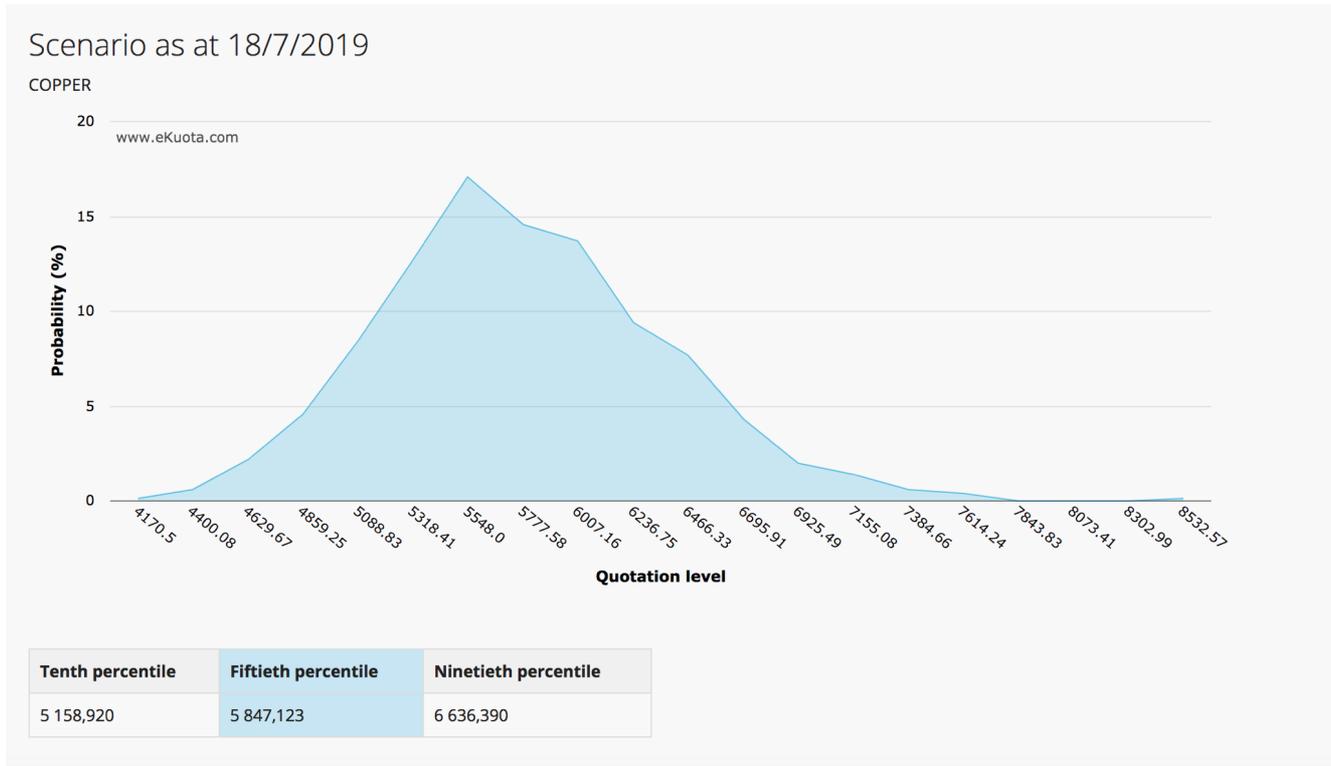
The Chinese manufacturing PMI for May was forecasted to increase slightly to 50,2 from 50,1; however, it did not increase but decreased to 49,4. This month's manufacturing PMI continues the now three months trend of a declining manufacturing PMI which started in March of this year. The Chinese inflation rate has been experiencing an upward trend and just hit a 15-month high of 2,7% YoY in May. The Yuan has depreciated against USD from 6,7339 on May 1st to 6,909,2 on May 31st.

The last Ekuota copper outlook posted in May of 2019 was 97.3% accurate with its predictions of the copper price. Going forwards, the effective 3-month hedge strategy is to buy forward the 3-month copper as well as the Euro/USD exchange rate.

## Summary of the main indications:

Price of LME cash copper at 17/06/2019	<b>\$5.755</b>
Annual volatility	16,62% steady
Expected price range at 18/07/2019	<b>\$5.158.-6.636 \$/ton</b>
Forecast in the short term	<b>NEUTRAL</b>
Effective hedge	<b>Buy forward 3-month copper, buy forward Euro/USD</b>

The eKuota forecasts, based on proprietary statistical models, predicts for the next month a range between 5.158 and 6.636 \$/ton for the LME cash price. The expected average is **\$5.847**.



**Summary of estimates for metal prices (LME cash) for the next month.**

Metals	EQUOTA FORECASTS FOR THE NEXT MONTH			
	Price at 17/06/2019	10th percentile	50th percentile	90th percentile
Copper	5,804	5,158	5,847	6,636
Aluminium	1,719	1,551	1,752	1,992
Nickel	11,740	9,927	11,919	14,623
Zinc	2,548	2,231	2,644	3,095

## Analysis methodology

In this monthly report, the quantitative Ekuota models were used with the updated data on the indicated date. The goal is to provide a view of exchange rates trends against the Euro and the indications deriving from the planning of the relative cash flows. Forecasts are estimates of the future, and therefore should not be understood as a guarantee of results.

The Ekuota forecasts are based on statistical analysis and current market conditions. The relevant outputs in our model are the expected price range and short-term forecasts for the next month.

The scenario estimates are composed of:

- the 10th quantile, the expected downward price for the next month;
- the 50th quantile, the expected average price for the next month;
- the 90th quantile, the rising price expected for the next month.

In the Ekuota platform, a continuous update of the estimates is available. It is advised to check and update these estimates frequently especially for events relevant to the financial markets.

## ACCURACY OF THE EKUOTA FORECAST – LAST MONTHS (LME CASH USD/ton)

MARCH 2019	Ekuota Forecasts			LME quote			Error	
	10th percentile	50th percentile	90th percentile	Price as at 22/03/2019	Moving average 20 as at 22/03/2019	Moving avg-50th percentile	Mape	Forecast accuracy (1-MAPE)
NICKEL	10,686	12,831	15,637	12,270	12,874	43	4.2%	95.8%
COPPER	5,618	6,383	7,246	6,393	6,183	- 200.00	2.7%	97.3%
ALUMINIUM	1,671	1,867	2,123	1,832	1,857	- 10.00	2.7%	97.3%
ZINC	2,450	2,908	3,453	2,917	2,648	- 260.00	5.3%	94.7%

APRIL 2019	Ekuota Forecasts			LME quote			Error	
	10th percentile	50th percentile	90th percentile	Price as at 25/04/2019	Moving average 20 as at 25/04/2019	Moving avg-50th percentile	Mape	Forecast accuracy (1-MAPE)
NICKEL	10,686	12,831	15,637	12,270	12911.75	80.75	4.0%	96.0%
COPPER	5,618	6,383	7,246	6,376	6444.98	61.98	2.6%	97.4%
ALUMINIUM	1,671	1,867	2,123	1,852	1860.88	- 6.13	2.5%	97.5%
ZINC	2,450	2,908	3,453	2,870	2945.68	37.68	5.0%	95.0%

MAY 2019	Ekuota Forecasts			LME quote			Error	
	10th percentile	50th percentile	90th percentile	Price as at 07/06/2019	Moving average 20 as at 07/06/2019	Moving avg-50th percentile	Mape	Forecast accuracy (1-MAPE)
NICKEL	10,676	12,185	13,908	11,580	11932.00	- 253.00	3.9%	96.1%
COPPER	5,675	6,188	6,782	5,770	5924.05	- 263.95	2.7%	97.3%
ALUMINIUM	1,645	1,783	1,946	1,733	1769.58	- 13.43	2.4%	97.6%
ZINC	2,599	2,913	3,244	2,621	2694.43	- 218.58	5.2%	94.8%

**Legend:** 1-month ekuota forecasts (50th perc.): The forecast indicated in the last report with horizon per month following.  
 Fixing: the closing price of the day. Mobile Media 20: the average of the previous 20-day quotes. Error%: percentage difference between the ekuota forecasts and the mobile average 20. MAPE: the relationship between the cumulated percentage error for the period and the number of reference periods; Forecast accuracy: (1 - MAPE)

**Annual Volatility %**

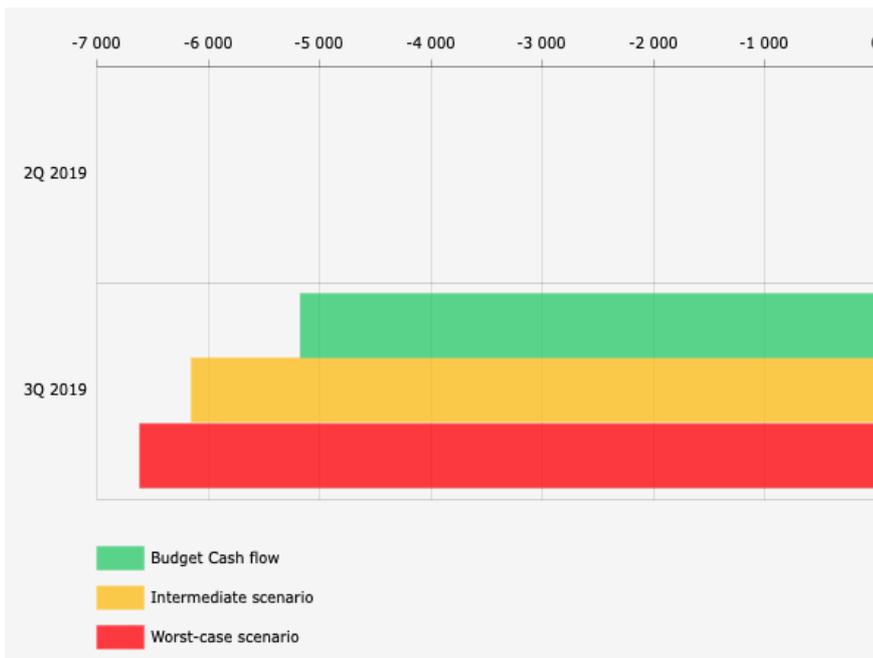


The risk indicator is the historical volatility compared to other quotations. This indicator illustrates the probabilities of price changes, due to market trends. It is the risk of obtaining a value different from the expected one. Copper was classified, in terms of risk, 16.62% which represents a **medium-low risk**.

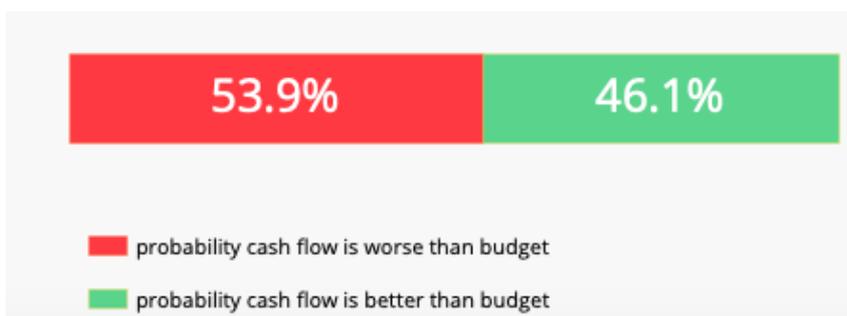
In general, 0 to 13 corresponds to the low risk class, 14 to 17 to the medium-low risk class, 17 to 19 to the average risk class, and 19 to 21 to the medium-high risk class. If it is higher than 21, this is the highest risk class.

**Estimation of potential loss.**

It is the potential deviation from the current market values or how expensive copper could be



The LME cash/ton Copper price at 14/06/19 is EURO 5.168 and in three months it could cost up to EURO 6.155 (95<sup>th</sup> percentile, or **19%** more. The probability of this price increase is **53.9%**.



**Important information**

Additional information available on request.

**Forecasts.** The forecasts were made with a statistical model of ownership, which has a reliability index (100-Mape) on average of 98.15% over one month, 96.6% over three months, and 94.7% over six months. Traders can use these forecasts to determine the direction of future trends, however Ekuota recommends that this analysis be used in conjunction with fundamental analysis such as macroeconomic growth and expectations on monetary policy. Although the forecast can offer an important indication, we recommend that you always make cross-checks with a solid analysis of prices and risks associated with the discovery of significant signals in the fundamentals of price quotations over time. The content is not intended as an advice or a recommendation of any kind.

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